

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: February 11, 2005, 17:39:11 ; Search time 50.7177 Seconds  
(without alignments)  
373.662 Million cell updates/sec

Title: US-10-054-873-1  
Perfect score: 260  
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....QEFEEAYIPKEQKYSFLQNP 49

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*  
1: geneseqp1980s:\*  
2: geneseqp1990s:\*  
3: geneseqp2000s:\*  
4: geneseqp2001s:\*  
5: geneseqp2002s:\*  
6: geneseqp2003as:\*  
7: geneseqp2003bs:\*  
8: geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query		DB	ID	Description
		Match	Length			
1	260	100.0	49	2	AA42855	Aay42855 Human gro
2	260	100.0	92	2	AA42856	Aay42856 Human gro
3	260	100.0	107	2	AA42860	Aay42860 hGH-mini-
4	260	100.0	134	2	AA92265	Aaw92265 Human ant
5	260	100.0	140	1	AA91041	Aap91041 Human gro
6	260	100.0	150	2	AA42861	Aay42861 Chimeric
7	260	100.0	188	8	AD47330	Adi47330 Plasmid p
8	260	100.0	192	1	AA90129	Aap90129 Human gro
9	260	100.0	192	2	AA92264	Aaw92264 Human ant

10	260	100.0	192	8	ADI47320	Adi47320	Plasmid p
11	260	100.0	192	8	ADI47390	Adi47390	Plasmid p
12	260	100.0	192	8	ADI47398	Adi47398	Nmer ampl
13	260	100.0	193	8	ADI47354	Adi47354	Plasmid p
14	260	100.0	206	8	ADI47384	Adi47384	Plasmid p
15	260	100.0	261	1	AAP91299	Aap91299	Human ner
16	260	100.0	262	1	AAP61033	Aap61033	Human bet
17	260	100.0	262	2	AAR11740	Aar11740	Human gro
18	260	100.0	310	2	AAR03255	Aar03255	Fusion pr
19	260	100.0	391	8	ADI47363	Adi47363	Plasmid p
20	260	100.0	574	8	ADI47344	Adi47344	Plasmid p
21	260	100.0	576	8	ADI47351	Adi47351	Plasmid p
22	260	100.0	589	8	ADI47365	Adi47365	N+lmer am
23	260	100.0	786	8	ADI47367	Adi47367	Nmer ampl
24	260	100.0	810	8	ADI47388	Adi47388	Amplifica
25	257	98.8	144	2	AAR05313	Aar05313	Segment o
26	257	98.8	794	7	ADF16507	Adf16507	Human alb
27	257	98.8	800	7	ADF16216	Adf16216	Human alb
28	256	98.5	204	5	ABB77327	Abb77327	Human gro
29	255	98.1	138	1	AAP81226	Aap81226	Sequence
30	255	98.1	178	8	ADQ39283	Adq39283	Human myo
31	255	98.1	179	5	AAM47922	Aam47922	Human GH-
32	255	98.1	191	1	AAP60016	Aap60016	Sequence
33	255	98.1	191	2	AAO20110	Aao20110	Protein s
34	255	98.1	191	2	AAW71289	Aaw71289	Human gro
35	255	98.1	191	2	AAV15809	Aay15809	Primary a
36	255	98.1	191	2	AAV04397	Aay04397	Mutant hu
37	255	98.1	191	2	AAV04396	Aay04396	Natural h
38	255	98.1	191	3	AAV78425	Aay78425	Human gro
39	255	98.1	191	4	AAO17485	Aao17485	Human gro
40	255	98.1	191	4	AAO17486	Aao17486	Human gro
41	255	98.1	191	5	ABG31865	Abg31865	Mature hu
42	255	98.1	191	5	ABG31863	Abg31863	Mature hu
43	255	98.1	191	5	ABG31859	Abg31859	Mature hu
44	255	98.1	191	5	ABG31860	Abg31860	Mature hu
45	255	98.1	191	5	ABG31866	Abg31866	Mature hu

#### ALIGNMENTS

##### RESULT 1

AAV42855

ID AAV42855 standard; protein; 49 AA.

XX

AC AAV42855;

XX

DT 19-JAN-2000 (first entry)

XX

DE Human growth hormone (hGH) N-terminal fragment #1.

XX

KW Growth hormone; chaperone; intramolecular; insulin; precursor; folding;  
KW conformation; chimeric protein; cleavable; recombinant; production;  
KW yield.

XX

OS Homo sapiens.

XX

PN WO9950302-A1.  
 XX  
 PD 07-OCT-1999.  
 XX  
 PF 31-MAR-1998; 98WO-CN000052.  
 XX  
 PR 31-MAR-1998; 98WO-CN000052.  
 XX  
 PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.  
 XX  
 PI Gan Z;  
 XX  
 DR WPI; 1999-610839/52.  
 XX  
 PT New chimeric proteins containing human growth hormone fragment, used  
 PT particularly for the production of human insulin.  
 XX  
 PS Claim 4; Page 28; 46pp; English.  
 XX  
 CC This sequence represents an N-terminal fragment of human growth hormone  
 CC (hGH) which is a component of a chimeric protein, hGH-mini-proinsulin  
 CC (AAY42860). The hGH portion of the chimeric protein acts as an  
 CC intramolecular chaperone (IMC) for the insulin precursor, enabling it to  
 CC fold correctly. A cleavable peptide linker with a C-terminal Arg residue  
 CC (AAY42857) enables the hGH portion of the chimeric protein to be removed  
 CC after folding has taken place. Production of recombinant human insulin  
 CC via an hGH-proinsulin chimeric protein can provide human insulin with  
 CC correctly linked cysteine bridges with fewer necessary procedural steps,  
 CC and hence resulting in a higher yield of human insulin. The IMC sequences  
 CC not only protect insulin sequences from intracellular degradation by a  
 CC microorganism host, but also promote the folding of the fused insulin  
 CC precursor, facilitate the solubility of the fusion protein and decrease  
 CC the intermolecular interactions among the fusion proteins, thus allowing  
 CC folding of the fused insulin precursor at commercially useful high  
 CC concentrations. The procedural steps of cyanogen bromide cleavage,  
 CC oxidative sulphytolysis and related purification steps can thus be  
 CC eliminated, along with the use of high concentrations of mercaptan or the  
 CC use of hydrophobic absorbent resins  
 XX  
 SQ Sequence 49 AA;

Query Match 100.0%; Score 260; DB 2; Length 49;  
 Best Local Similarity 100.0%; Pred. No. 4.3e-25;  
 Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
 ||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

RESULT 2  
 AAY42856  
 ID AAY42856 standard; protein; 92 AA.  
 XX  
 AC AAY42856;  
 XX  
 DT 19-JAN-2000 (first entry)

XX  
DE Human growth hormone (hGH) N-terminal fragment #2.  
XX  
KW Growth hormone; chaperone; intramolecular; insulin; precursor; folding;  
KW conformation; chimeric protein; cleavable; recombinant; production;  
KW yield.  
XX  
OS Homo sapiens.  
XX  
PN WO9950302-A1.  
XX  
PD 07-OCT-1999.  
XX  
PF 31-MAR-1998; 98WO-CN000052.  
XX  
PR 31-MAR-1998; 98WO-CN000052.  
XX  
PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.  
XX  
PI Gan Z;  
XX  
DR WPI; 1999-610839/52.  
XX  
PT New chimeric proteins containing human growth hormone fragment, used  
PT particularly for the production of human insulin.  
XX  
PS Claim 5; Page 28; 46pp; English.  
XX  
CC This sequence represents an N-terminal fragment of human growth hormone  
CC (hGH) which is a component of a chimeric protein (AAY42861) which also  
CC contains a human insulin precursor (AAY42859). The hGH portion of the  
CC chimeric protein acts as an intramolecular chaperone (IMC) for the  
CC insulin precursor, enabling it to fold correctly. A cleavable peptide  
CC linker with a C-terminal Arg residue (AAY42857) enables the hGH portion  
CC of the chimeric protein to be removed after folding has taken place.  
CC Production of recombinant human insulin via an hGH-proinsulin chimeric  
CC protein can provide human insulin with correctly linked cysteine bridges  
CC with fewer necessary procedural steps, and hence resulting in a higher  
CC yield of human insulin. The IMC sequences not only protect insulin  
CC sequences from intracellular degradation by a microorganism host, but  
CC also promote the folding of the fused insulin precursor, facilitate the  
CC solubility of the fusion protein and decrease the intermolecular  
CC interactions among the fusion proteins, thus allowing folding of the  
CC fused insulin precursor at commercially useful high concentrations. The  
CC procedural steps of cyanogen bromide cleavage, oxidative sulphytolysis  
CC and related purification steps can thus be eliminated, along with the use  
CC of high concentrations of mercaptan or the use of hydrophobic absorbent  
CC resins  
XX  
SQ Sequence 92 AA;

Query Match 100.0%; Score 260; DB 2; Length 92;  
Best Local Similarity 100.0%; Pred. No. 8.6e-25;  
Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
|||||

## RESULT 3

AAY42860

ID AAY42860 standard; protein; 107 AA.

XX

AC AAY42860;

XX

DT 19-JAN-2000 (first entry)

XX

DE hGH-mini-proinsulin chimeric protein.

XX

KW Insulin; precursor; growth hormone; chaperone; intramolecular; folding;  
KW conformation; chimeric protein; cleavable; recombinant; production;  
KW yield.

XX

OS Synthetic.

OS Homo sapiens.

XX

PN WO9950302-A1.

XX

PD 07-OCT-1999.

XX

PF 31-MAR-1998; 98WO-CN000052.

XX

PR 31-MAR-1998; 98WO-CN000052.

XX

PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.

XX

PI Gan Z;

XX

DR WPI; 1999-610839/52.

XX

PT New chimeric proteins containing human growth hormone fragment, used  
PT particularly for the production of human insulin.

XX

PS Claim 13; Page 30; 46pp; English.

XX

CC This sequence represents a chimeric protein, hGH-mini-proinsulin. This  
CC chimeric protein contains an N-terminal fragment of human growth hormone  
CC (hGH) of the sequence given in AAY42855, a cleavable peptide linker  
CC (AAY42857), and a human insulin precursor comprising insulin A and B  
CC chains (AAY42859). The hGH portion of the chimeric protein acts as an  
CC intramolecular chaperone (IMC) for the insulin precursor, enabling it to  
CC fold correctly. The cleavable peptide linker has a C-terminal Arg residue  
CC which enables the hGH portion of the chimeric protein to be removed after  
CC folding has taken place. Production of recombinant human insulin via an  
CC hGH-proinsulin chimeric protein can provide human insulin with correctly  
CC linked cysteine bridges with fewer necessary procedural steps, and hence  
CC resulting in a higher yield of human insulin. The IMC sequences not only  
CC protect insulin sequences from intracellular degradation by a  
CC microorganism host, but also promote the folding of the fused insulin  
CC precursor, facilitate the solubility of the fusion protein and decrease  
CC the intermolecular interactions among the fusion proteins, thus allowing  
CC folding of the fused insulin precursor at commercially useful high  
CC concentrations. The procedural steps of cyanogen bromide cleavage,





XX  
 OS Homo sapiens; (human).  
 XX  
 PN EP329175-A.  
 XX  
 PD 23-AUG-1989.  
 XX  
 PF 17-FEB-1989; 89EP-00102795.  
 XX  
 PR 19-FEB-1988; 88JP-00035042.  
 XX  
 PA (TOYJ ) TOSOH CORP.  
 XX  
 PI Ohtsuka E;  
 XX  
 DR WPI; 1989-243092/34.  
 XX  
 PT New human nerve growth factor gene encoding fusion protein - having  
 PT cleavage site for thrombin, useful for treating geriatric dementia, etc.  
 XX  
 PS Disclosure; Page 21; 38pp; English.  
 XX  
 CC Human growth hormone segment, used at the N-terminal of a fusion protein,  
 CC which contains a thrombin recognition site, and human beta nerve growth  
 CC factor (beta-NGF) at the C-terminal. Beta-NGF can be used to control  
 CC geriatric dementia and other nervous disorders, and can be released from  
 CC the fusion protein by incubation with thrombin (see AAN90577-8, AAP91034,  
 CC AAP91299). (Updated on 24-OCT-2003 to standardise OS field)  
 XX  
 SQ Sequence 140 AA;

Query Match 100.0%; Score 260; DB 1; Length 140;  
 Best Local Similarity 100.0%; Pred. No. 1.4e-24;  
 Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

# RESULT 6

AAY42861

ID AAY42861 standard; protein; 150 AA.

XX

AC AAY42861;

XX

DT 19-JAN-2000 (first entry)

XX

DE Chimeric protein, SEQ ID 7.

XX

KW Insulin; precursor; growth hormone; chaperone; intramolecular; folding;  
 KW conformation; chimeric protein; cleavable; recombinant; production;  
 KW yield.

XX

OS Synthetic.

OS Homo sapiens.

XX



PN WO9950302-A1.  
 XX  
 PD 07-OCT-1999.  
 XX  
 PF 31-MAR-1998; 98WO-CN000052.  
 XX  
 PR 31-MAR-1998; 98WO-CN000052.  
 XX  
 PA (TONG-) TONGHUA GANTECH BIOTECHNOLOGY LTD.  
 XX  
 PI Gan Z;  
 XX  
 DR WPI; 1999-610839/52.  
 XX  
 PT New chimeric proteins containing human growth hormone fragment, used  
 PT particularly for the production of human insulin.  
 XX  
 PS Claim 14; Page 30-31; 46pp; English.  
 XX  
 CC This sequence represents a chimeric protein, which contains an N-terminal  
 CC fragment of human growth hormone (hGH) of the sequence given in AAY42856,  
 CC a cleavable peptide linker (AAY42857), and a human insulin precursor  
 CC comprising insulin A and B chains (AAY42859). The hGH portion of the  
 CC chimeric protein acts as an intramolecular chaperone (IMC) for the  
 CC insulin precursor, enabling it to fold correctly. The cleavable peptide  
 CC linker has a C-terminal Arg residue which enables the hGH portion of the  
 CC chimeric protein to be removed after folding has taken place. Production  
 CC of recombinant human insulin via an hGH-proinsulin chimeric protein can  
 CC provide human insulin with correctly linked cysteine bridges with fewer  
 CC necessary procedural steps, and hence resulting in a higher yield of  
 CC human insulin. The IMC sequences not only protect insulin sequences from  
 CC intracellular degradation by a microorganism host, but also promote the  
 CC folding of the fused insulin precursor, facilitate the solubility of the  
 CC fusion protein and decrease the intermolecular interactions among the  
 CC fusion proteins, thus allowing folding of the fused insulin precursor at  
 CC commercially useful high concentrations. The procedural steps of cyanogen  
 CC bromide cleavage, oxidative sulfitolysis and related purification steps  
 CC can thus be eliminated, along with the use of high concentrations of  
 CC mercaptan or the use of hydrophobic absorbent resins  
 XX  
 SQ Sequence 150 AA;

Query Match 100.0%; Score 260; DB 2; Length 150;  
 Best Local Similarity 100.0%; Pred. No. 1.5e-24;  
 Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
 ||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

RESULT 7  
 ADI47330  
 ID ADI47330 standard; protein; 188 AA.  
 XX  
 AC ADI47330;  
 XX

DT 22-APR-2004 (first entry)  
XX  
DE Plasmid p0A11A1 amino acid sequence SEQ ID NO:18.  
XX  
KW multimer assembly; DNA sequence; amplification cassette;  
KW monomer sequence; restriction pair member; diagnostic protein;  
KW therapeutic protein.  
XX  
OS Synthetic.  
XX  
PN WO2004007687-A2.  
XX  
PD 22-JAN-2004.  
XX  
PF 16-JUL-2003; 2003WO-US022216.  
XX  
PR 16-JUL-2002; 2002US-0396466P.  
XX  
PA (BUSS/) BUSSELL S.  
XX  
PI Bussell S;  
XX  
DR WPI; 2004-122926/12.  
DR N-PSDB; ADI47329.  
XX  
PT Multimer assembly of DNA sequences comprising an amplification cassette  
PT having monomer sequences and 5' restriction pair member (RPM) at its 5'  
PT terminus and 3' RPM at its 3' terminus.  
XX  
PS Example 2; SEQ ID NO 18; 163pp; English.  
XX  
CC The present invention describes a multimer assembly of DNA sequences (I)  
CC comprising at least one amplification cassette (AC) having at least one  
CC monomer sequence whose polymerisation is desired, and a 5' restriction  
CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and  
CC one or more of following: (a) 3'-terminal cassette comprising 3' specific  
CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal  
CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'  
CC RPM site of AC. (I) can be used for expressing a diagnostic protein or  
CC therapeutic protein. In (I), the diagnostic protein and therapeutic  
CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor  
CC ligand, an enzyme, an inhibitor, a transcription factor, a translation  
CC factor, a DNA replication factor, an activator, a chaperonin, or an  
CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,  
CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,  
CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,  
CC colony-stimulating factor-1, granulocyte colony-stimulating factor,  
CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory  
CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth  
CC factor, fibroblast growth factors, vascular endothelial cell growth  
CC factor, epidermal growth factor, transforming growth factor-beta,  
CC transforming growth factor-alpha, thrombopoietin, stem cell factor,  
CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth  
CC factor, macrophage migration inhibiting factor, endostatin, or  
CC angiostatin. The present sequence is used in the exemplification of the  
CC present invention.  
XX

SQ Sequence 188 AA;

Query Match 100.0%; Score 260; DB 8; Length 188;  
Best Local Similarity 100.0%; Pred. No. 1.9e-24;  
Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
|||||  
Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

RESULT 8

AAP90129

ID AAP90129 standard; protein; 192 AA.

XX

AC AAP90129;

XX

DT 24-OCT-2003 (revised)

DT 25-MAR-2003 (revised)

DT 06-FEB-1996 (revised)

DT 01-NOV-1989 (first entry)

XX

DE Human growth hormone.

XX

KW Human growth hormone; fusion protein; recombinant vector.

XX

OS Homo sapiens; (Human).

XX

PN JP01144981-A.

XX

PD 07-JUN-1989.

XX

PF 02-DEC-1987; 87JP-00304937.

XX

PR 02-DEC-1987; 87JP-00304937.

XX

PA (WAKT ) WAKUNAGA SEIYAKU KK.

XX

DR WPI; 1989-209284/29.

DR N-PSDB; AAN90269.

XX

PT Recombinant vector contg. fused protein aminoacid coding - composed of  
PT growth hormone or its polypeptide deriv. and foreign protein.

XX

PS Disclosure; Fig 1; 19pp; Japanese.

XX

CC The invention consists of a vector contg. a fusion protein which is  
CC formed by ligating, downstream of a promoter, hGH or a deriv. (pref.  
CC formed by substn. of Met-14 with Leu) and a foreign protein. Stability  
CC of the vector in the host is greatly increased so the protein yield is  
CC higher. (Updated on 25-MAR-2003 to correct PA field.) (Updated on 24-OCT-  
CC 2003 to standardise OS field)

XX

SQ Sequence 192 AA;

Query Match 100.0%; Score 260; DB 1; Length 192;  
Best Local Similarity 100.0%; Pred. No. 1.9e-24;

Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
|||||  
Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49

RESULT 9

AAW92264

ID AAW92264 standard; protein; 192 AA.

XX

AC AAW92264;

XX

DT 08-JUN-1999 (first entry)

XX

DE Human anti-angiogenic peptide hGH Met-1Phel91.

XX

KW Human; anti-angiogenic; prolactin; placental lactogen; hPL; angiogenesis;  
KW growth hormone; hGH; hGH-V; capillary endothelial cell proliferation;  
KW placental vascularisation; pregnancy; treatment; angiogenic disease;  
KW tumour; inhibitor; malignant; angiofibroma; arteriovenous malformation;  
KW arthritis; atherosclerotic plaques; corneal graft neovascularisation;  
KW wound healing; proliferative retinopathy; macular degeneration; trachoma;  
KW granulation; glaucoma; ocular; uveitis; fracture; Osler-Weber syndrome;  
KW psoriasis; fibroplasia; scleroderma; Kaposi's sarcoma; vascular adhesion;  
KW ulcer; leukaemia; reproductive disorder; contraceptive agent;  
KW gene therapy; pre-eclampsia; intrauterine growth retardation;  
KW placental dysfunction.

XX

OS Homo sapiens.

XX

PN WO9851323-A1.

XX

PD 19-NOV-1998.

XX

PF 12-MAY-1998; 98WO-US009691.

XX

PR 13-MAY-1997; 97US-0046394P.

XX

PA (REGC ) UNIV CALIFORNIA.

XX

PI Weiner RI, Martial JA, Struman I, Taylor R;

XX

DR WPI; 1999-045192/04.

DR N-PSDB; AAX01706.

XX

PT New anti-angiogenic peptides - comprise N-terminal fragments of human  
PT placental lactogen, human growth hormone, growth hormone variant or human  
PT prolactin.

XX

PS Example 3; Page 49; 87pp; English.

XX

CC This invention describes novel human anti-angiogenic peptides derived  
CC from 10 to 150 consecutive amino acids selected from the N-terminal end  
CC of human placental lactogen (hPL), human growth hormone (hGH), growth  
CC hormone variant (hGH-V), or human prolactin. Such peptides (i) inhibit  
CC capillary endothelial cell proliferation and organisation (ii) inhibit





AC ADI47390;  
 XX  
 DT 22-APR-2004 (first entry)  
 XX  
 DE Plasmid p0A51A amino acid sequence SEQ ID NO:78.  
 XX  
 KW multimer assembly; DNA sequence; amplification cassette;  
 KW monomer sequence; restriction pair member; diagnostic protein;  
 KW therapeutic protein.  
 XX  
 OS Synthetic.  
 XX  
 PN WO2004007687-A2.  
 XX  
 PD 22-JAN-2004.  
 XX  
 PF 16-JUL-2003; 2003WO-US022216.  
 XX  
 PR 16-JUL-2002; 2002US-0396466P.  
 XX  
 PA (BUSS/) BUSSELL S.  
 XX  
 PI Bussell S;  
 XX  
 DR WPI; 2004-122926/12.  
 DR P-PSDB; ADI47389.  
 XX  
 PT Multimer assembly of DNA sequences comprising an amplification cassette  
 PT having monomer sequences and 5' restriction pair member (RPM) at its 5'  
 PT terminus and 3' RPM at its 3' terminus.  
 XX  
 PS Example 12; SEQ ID NO 78; 163pp; English.  
 XX  
 CC The present invention describes a multimer assembly of DNA sequences (I)  
 CC comprising at least one amplification cassette (AC) having at least one  
 CC monomer sequence whose polymerisation is desired, and a 5' restriction  
 CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and  
 CC one or more of following: (a) 3'-terminal cassette comprising 3' specific  
 CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal  
 CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'  
 CC RPM site of AC. (I) can be used for expressing a diagnostic protein or  
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic  
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor  
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation  
 CC factor, a DNA replication factor, an activator, a chaperonin, or an  
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,  
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,  
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,  
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,  
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory  
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth  
 CC factor, fibroblast growth factors, vascular endothelial cell growth  
 CC factor, epidermal growth factor, transforming growth factor-beta,  
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,  
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth  
 CC factor, macrophage migration inhibiting factor, endostatin, or  
 CC angiostatin. The present sequence is used in the exemplification of the





CC RPM site of AC. (I) can be used for expressing a diagnostic protein or  
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic  
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor  
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation  
 CC factor, a DNA replication factor, an activator, a chaperonin, or an  
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,  
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,  
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,  
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,  
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory  
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth  
 CC factor, fibroblast growth factors, vascular endothelial cell growth  
 CC factor, epidermal growth factor, transforming growth factor-beta,  
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,  
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth  
 CC factor, macrophage migration inhibiting factor, endostatin, or  
 CC angiostatin. The present sequence is used in the exemplification of the  
 CC present invention.  
 XX  
 SQ Sequence 192 AA;

Query Match 100.0%; Score 260; DB 8; Length 192;  
 Best Local Similarity 100.0%; Pred. No. 1.9e-24;  
 Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49

# RESULT 13

ADI47354

ID ADI47354 standard; protein; 193 AA.

XX

AC ADI47354;

XX

DT 22-APR-2004 (first entry)

XX

DE Plasmid p0A31A amino acid sequence SEQ ID NO:42.

XX

KW multimer assembly; DNA sequence; amplification cassette;

KW monomer sequence; restriction pair member; diagnostic protein;

KW therapeutic protein.

XX

OS Synthetic.

XX

PN WO2004007687-A2.

XX

PD 22-JAN-2004.

XX

PF 16-JUL-2003; 2003WO-US022216.

XX

PR 16-JUL-2002; 2002US-0396466P.

XX

PA (BUSS/) BUSSELL S.

XX

PI Bussell S;

XX  
 DR WPI; 2004-122926/12.  
 DR N-PSDB; ADI47353.  
 XX  
 PT Multimer assembly of DNA sequences comprising an amplification cassette  
 PT having monomer sequences and 5' restriction pair member (RPM) at its 5'  
 PT terminus and 3' RPM at its 3' terminus.  
 XX  
 PS Example 7; SEQ ID NO 42; 163pp; English.  
 XX  
 CC The present invention describes a multimer assembly of DNA sequences (I)  
 CC comprising at least one amplification cassette (AC) having at least one  
 CC monomer sequence whose polymerisation is desired, and a 5' restriction  
 CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and  
 CC one or more of following: (a) 3'-terminal cassette comprising 3' specific  
 CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal  
 CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'  
 CC RPM site of AC. (I) can be used for expressing a diagnostic protein or  
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic  
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor  
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation  
 CC factor, a DNA replication factor, an activator, a chaperonin, or an  
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,  
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,  
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,  
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,  
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory  
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth  
 CC factor, fibroblast growth factors, vascular endothelial cell growth  
 CC factor, epidermal growth factor, transforming growth factor-beta,  
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,  
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth  
 CC factor, macrophage migration inhibiting factor, endostatin, or  
 CC angiostatin. The present sequence is used in the exemplification of the  
 CC present invention.  
 XX  
 SQ Sequence 193 AA;

Query Match 100.0%; Score 260; DB 8; Length 193;  
 Best Local Similarity 100.0%; Pred. No. 1.9e-24;  
 Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
 ||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49

RESULT 14  
 ADI47384  
 ID ADI47384 standard; protein; 206 AA.  
 XX  
 AC ADI47384;  
 XX  
 DT 22-APR-2004 (first entry)  
 XX  
 DE Plasmid p0A43A insert amino acid sequence SEQ ID NO:72.  
 XX

KW multimer assembly; DNA sequence; amplification cassette;  
 KW monomer sequence; restriction pair member; diagnostic protein;  
 KW therapeutic protein.  
 XX  
 OS Synthetic.  
 XX  
 PN WO2004007687-A2.  
 XX  
 PD 22-JAN-2004.  
 XX  
 PF 16-JUL-2003; 2003WO-US022216.  
 XX  
 PR 16-JUL-2002; 2002US-0396466P.  
 XX  
 PA (BUSS/) BUSSELL S.  
 XX  
 PI Bussell S;  
 XX  
 DR WPI; 2004-122926/12.  
 DR P-PSDB; ADI47383.  
 XX  
 PT Multimer assembly of DNA sequences comprising an amplification cassette  
 PT having monomer sequences and 5' restriction pair member (RPM) at its 5'  
 PT terminus and 3' RPM at its 3' terminus.  
 XX  
 PS Example 11; SEQ ID NO 72; 163pp; English.  
 XX  
 CC The present invention describes a multimer assembly of DNA sequences (I)  
 CC comprising at least one amplification cassette (AC) having at least one  
 CC monomer sequence whose polymerisation is desired, and a 5' restriction  
 CC pair member (RPM) at its 5' terminus and 3' RPM at its 3' terminus, and  
 CC one or more of following: (a) 3'-terminal cassette comprising 3' specific  
 CC sequence and 5' RPM site fused to a 3' RPM site of AC; or (b) 5'-terminal  
 CC cassette comprising 5' specific sequence and 3' RPM site fused to a 5'  
 CC RPM site of AC. (I) can be used for expressing a diagnostic protein or  
 CC therapeutic protein. In (I), the diagnostic protein and therapeutic  
 CC protein is a cytokine, a growth factor, a hormone, a receptor, a receptor  
 CC ligand, an enzyme, an inhibitor, a transcription factor, a translation  
 CC factor, a DNA replication factor, an activator, a chaperonin, or an  
 CC antibody. The therapeutic protein is interferon (IFN) alpha, IFN-beta,  
 CC IFN-gamma, interleukin (IL)-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8,  
 CC IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, erythropoietin,  
 CC colony-stimulating factor-1, granulocyte colony-stimulating factor,  
 CC granulocyte-macrophage colony-stimulating factor, leukaemia inhibitory  
 CC factor, tumour necrosis factor, lymphotoxin, platelet-derived growth  
 CC factor, fibroblast growth factors, vascular endothelial cell growth  
 CC factor, epidermal growth factor, transforming growth factor-beta,  
 CC transforming growth factor-alpha, thrombopoietin, stem cell factor,  
 CC oncostatin M, amphiregulin, mullerian-inhibiting substance, B-cell growth  
 CC factor, macrophage migration inhibiting factor, endostatin, or  
 CC angiostatin. The present sequence is used in the exemplification of the  
 CC present invention.  
 XX  
 SQ Sequence 206 AA;

Query Match 100.0%; Score 260; DB 8; Length 206;  
 Best Local Similarity 100.0%; Pred. No. 2.1e-24;

Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
|||||  
Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

RESULT 15

AAP91299

ID AAP91299 standard; protein; 261 AA.

XX

AC AAP91299;

XX

DT 24-OCT-2003 (revised)

DT 14-DEC-1989 (first entry)

XX

DE Human nerve growth factor and human growth hormone fusion protein.

XX

KW Human nerve growth factor; fusion protein; thrombin; geriatric dementia;  
nervous disorders; human growth hormone.

XX

OS Homo sapiens; (human).

XX

FH Key Location/Qualifiers

FT Region 1. .140

FT Region 141. .143

FT Region 144. .261

XX

PN EP329175-A.

XX

PD 23-AUG-1989.

XX

PF 17-FEB-1989; 89EP-00102795.

XX

PR 19-FEB-1988; 88JP-00035042.

XX

PA (TOYJ ) TOSOH CORP.

XX

PI Ohtsuka E;

XX

DR WPI; 1989-243092/34.

XX

PT New human nerve growth factor gene encoding fusion protein - having  
cleavage site for thrombin, useful for treating geriatric dementia, etc.

XX

PS Claim 36; Page 31-32; 38pp; English.

XX

CC Fusion protein consisting of human growth hormone at the N-terminal end  
CC (1st region), a 3 amino acid sequence representing thrombin recognition  
CC site, and human beta nerve growth factor (beta-NGF) at the C-terminal.  
CC Beta-NGF can be used to control geriatric dementia and other nervous  
CC disorders, and can be released from the fusion protein by incubation with  
CC thrombin (see AAN90577-8, AAP91034, AAP91041). (Updated on 24-OCT-2003 to  
CC standardise OS field)

XX

SQ Sequence 261 AA;

Query Match 100.0%; Score 260; DB 1; Length 261;  
Best Local Similarity 100.0%; Pred. No. 2.7e-24;  
Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
          ||||||||||||||||||||||||||||||||||||||||||||
Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
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Search completed: February 11, 2005, 18:14:43  
Job time : 52.7177 secs

OM protein - protein search, using sw model

Run on: February 11, 2005, 18:04:56 ; Search time 12.928 Seconds  
(without alignments)  
282.936 Million cell updates/sec

Title: US-10-054-873-1  
Perfect score: 260  
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....QEFEEAYIPKEQKYSFLQNP 49

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Issued Patents\_AA:\*  
1: /cgn2\_6/ptodata/1/iaa/5A\_COMB.pep:\*  
2: /cgn2\_6/ptodata/1/iaa/5B\_COMB.pep:\*  
3: /cgn2\_6/ptodata/1/iaa/6A\_COMB.pep:\*  
4: /cgn2\_6/ptodata/1/iaa/6B\_COMB.pep:\*  
5: /cgn2\_6/ptodata/1/iaa/PCTUS\_COMB.pep:\*  
6: /cgn2\_6/ptodata/1/iaa/backfiles1.pep:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	%		DB	ID	Description
		Query Match	Length			
1	260	100.0	192	1	US-08-093-383-1	Sequence 1, Appli
2	255	98.1	191	3	US-09-284-878-5	Sequence 5, Appli
3	255	98.1	191	4	US-09-462-941-1	Sequence 1, Appli
4	255	98.1	191	4	US-09-554-451-1	Sequence 1, Appli
5	255	98.1	194	2	US-08-383-621-4	Sequence 4, Appli
6	255	98.1	194	3	US-08-459-906-4	Sequence 4, Appli
7	255	98.1	198	4	US-09-949-016-8650	Sequence 8650, Ap
8	255	98.1	198	4	US-09-949-016-8651	Sequence 8651, Ap
9	255	98.1	198	4	US-09-949-016-8652	Sequence 8652, Ap
10	255	98.1	198	4	US-09-949-016-8653	Sequence 8653, Ap
11	255	98.1	198	4	US-09-949-016-8654	Sequence 8654, Ap

12	255	98.1	217	3	US-08-589-028-10	Sequence 10, Appl
13	255	98.1	217	3	US-08-784-582-10	Sequence 10, Appl
14	255	98.1	217	3	US-08-785-271-10	Sequence 10, Appl
15	255	98.1	217	3	US-08-759-628-11	Sequence 11, Appl
16	255	98.1	217	3	US-09-284-878-1	Sequence 1, Appli
17	255	98.1	217	4	US-09-929-918-9	Sequence 9, Appli
18	255	98.1	241	3	US-09-424-620B-25	Sequence 25, Appl
19	255	98.1	242	4	US-09-949-016-8660	Sequence 8660, Ap
20	255	98.1	242	4	US-09-949-016-8661	Sequence 8661, Ap
21	255	98.1	242	4	US-09-949-016-8662	Sequence 8662, Ap
22	255	98.1	242	4	US-09-949-016-8663	Sequence 8663, Ap
23	255	98.1	242	4	US-09-949-016-8664	Sequence 8664, Ap
24	255	98.1	245	4	US-09-280-030-66	Sequence 66, Appl
25	255	98.1	274	3	US-08-784-582-71	Sequence 71, Appl
26	255	98.1	360	3	US-08-784-582-73	Sequence 73, Appl
27	255	98.1	448	4	US-09-916-229A-2	Sequence 2, Appli
28	250	96.2	191	4	US-09-554-451-3	Sequence 3, Appli
29	249	95.8	191	3	US-09-465-461-1	Sequence 1, Appli
30	249	95.8	217	1	US-08-187-756C-4	Sequence 4, Appli
31	249	95.8	217	1	US-08-469-486-51	Sequence 51, Appl
32	249	95.8	217	2	US-08-469-658-51	Sequence 51, Appl
33	249	95.8	217	2	US-08-710-324A-4	Sequence 4, Appli
34	249	95.8	217	4	US-09-411-657-4	Sequence 4, Appli
35	248	95.4	191	3	US-08-800-215C-16	Sequence 16, Appl
36	248	95.4	191	3	US-08-800-215C-18	Sequence 18, Appl
37	248	95.4	191	3	US-08-800-215C-20	Sequence 20, Appl
38	248	95.4	400	4	US-09-420-819-37	Sequence 37, Appl
39	248	95.4	401	4	US-09-420-819-36	Sequence 36, Appl
40	237	91.2	71	1	US-08-314-586-24	Sequence 24, Appl
41	233	89.6	70	1	US-07-920-519-24	Sequence 24, Appl
42	233	89.6	70	3	US-08-115-753-26	Sequence 26, Appl
43	164.5	63.3	191	1	US-08-468-824-8	Sequence 8, Appli
44	164	63.1	176	3	US-08-791-728-1	Sequence 1, Appli
45	164	63.1	176	3	US-08-990-774-1	Sequence 1, Appli

#### ALIGNMENTS

#### RESULT 1

US-08-093-383-1

; Sequence 1, Application US/08093383

; Patent No. 5489529

#### ; GENERAL INFORMATION:

; APPLICANT: DeBoer, Herman A.

; APPLICANT: Heyneker, Herbert L.

; APPLICANT: Seeburg, Peter H.

; TITLE OF INVENTION: DNA for Expression of Bovine Growth Hormone

; NUMBER OF SEQUENCES: 30

#### ; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Genentech, Inc.

; STREET: 460 Point San Bruno Blvd

; CITY: South San Francisco

; STATE: California

; COUNTRY: USA

; ZIP: 94080

; COMPUTER READABLE FORM:

```

; MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: patin (Genentech)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/093,383
; FILING DATE: 14-JUL-1993
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/619827
; FILING DATE: 28-NOV-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/198824
; FILING DATE: 05-APR-1988
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 06/632361
; FILING DATE: 19-JUL-1984
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 06/303687
; FILING DATE: 18-SEP-1981
; ATTORNEY/AGENT INFORMATION:
; NAME: Johnston, Sean A.
; REGISTRATION NUMBER: P35,910
; REFERENCE/DOCKET NUMBER: 46C4
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415/225-3562
; TELEFAX: 415/952-9881
; TELEX: 910/371-7168
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 192 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
US-08-093-383-1

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Query Match          100.0%; Score 260; DB 1; Length 192;
Best Local Similarity 100.0%; Pred. No. 8e-30;
Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
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Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

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# RESULT 2

US-09-284-878-5

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; Sequence 5, Application US/09284878
; Patent No. 6342375

```

## GENERAL INFORMATION:

```

; APPLICANT: Olazaran, Martha Guerrero
; APPLICANT: Saldana, Hugo Barrera
; APPLICANT: Salvado, Jose Maria Viader
; TITLE OF INVENTION: Genetically Modified Methylophilic P. pastoris Yeast
for the
; TITLE OF INVENTION: Production and Secretion of the Human Growth Hormone
; FILE REFERENCE: 1829.0010000
; CURRENT APPLICATION NUMBER: US/09/284,878

```





```

; TITLE OF INVENTION: Detection of Molecules in Samples
; NUMBER OF SEQUENCES: 9
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Pillsbury Winthrop, L.L.P.
; STREET: 1100 New York Ave., N.W.
; CITY: Washington
; STATE: D.C.
; COUNTRY: U.S.A.
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: MS Word
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/554,451
; FILING DATE: 15-May-2000
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: PCT/GB98/03449
; FILING DATE: No. 6680207ember 16, 1998
; APPLICATION NUMBER: GB 9723955.2
; FILING DATE: No. 6680207ember 14, 1997
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 191 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; SEQUENCE DESCRIPTION: SEQ ID NO: 1:
US-09-554-451-1

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Query Match          98.1%; Score 255; DB 4; Length 191;
Best Local Similarity 100.0%; Pred. No. 4.2e-29;
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49
        ||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 48

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# RESULT 5

US-08-383-621-4

; Sequence 4, Application US/08383621

; Patent No. 5951972

## ; GENERAL INFORMATION:

; APPLICANT: Daley, Michael J.

; APPLICANT: Buckwalter, Brian L.

; APPLICANT: Cady, Susan M.

; APPLICANT: Shieh, Hong-Ming

; APPLICANT: Bohlen, Peter

; APPLICANT: Seddon, Andrew P.

; TITLE OF INVENTION: Stabilization Of Somatotropins And Other

; TITLE OF INVENTION: Proteins By Modification Of Cysteine Residues

; NUMBER OF SEQUENCES: 11

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Dr. Estelle J. Tsevdos

```

; STREET: 1937 West Main Street, P.O. Box 60
; CITY: Stamford
; STATE: Connecticut
; COUNTRY: U.S.A.
; ZIP: 06904-0060
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/383,621
; FILING DATE: 06-FEB-1995
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/766,142
; FILING DATE: 25-SEP-1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Tsevdos, Estelle J.
; REGISTRATION NUMBER: 31,145
; REFERENCE/DOCKET NUMBER: 31,278-01
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 203-321-2756
; TELEFAX: 203-321-2971
; TELEX: 203-710-474-4059
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 194 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-383-621-4

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```

Query Match          98.1%; Score 255; DB 2; Length 194;
Best Local Similarity 100.0%; Pred. No. 4.3e-29;
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

```

Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
        ||||||||||||||||||||||||||||||||||||||||||||
Db      4 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 51

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# RESULT 6

US-08-459-906-4

```

; Sequence 4, Application US/08459906
; Patent No. 6010999
; GENERAL INFORMATION:
; APPLICANT: Daley, Michael J.
; APPLICANT: Buckwalter, Brian L.
; APPLICANT: Cady, Susan M.
; APPLICANT: Shieh, Hong-Ming
; APPLICANT: Bohlen, Peter
; APPLICANT: Seddon, Andrew P.
; TITLE OF INVENTION: Stabilization of Somatotropins and Other
; TITLE OF INVENTION: Proteins by Modification of Cysteine Residues
; NUMBER OF SEQUENCES: 11
; CORRESPONDENCE ADDRESS:

```

```

;   ADDRESSEE: American Cyanamid Company
;   STREET: One Cyanamid Plaza
;   CITY: Wayne
;   STATE: New Jersey
;   COUNTRY: U.S.A.
;   ZIP: 07470-8426
;   COMPUTER READABLE FORM:
;   MEDIUM TYPE: Floppy disk
;   COMPUTER: IBM PC compatible
;   OPERATING SYSTEM: PC-DOS/MS-DOS
;   SOFTWARE: PatentIn Release #1.0, Version #1.25
;   CURRENT APPLICATION DATA:
;   APPLICATION NUMBER: US/08/459,906
;   FILING DATE: 02-JUN-1995
;   CLASSIFICATION: 514
;   ATTORNEY/AGENT INFORMATION:
;   NAME: Webster, Darryl L.
;   REGISTRATION NUMBER: 34,276
;   REFERENCE/DOCKET NUMBER: 31,278-03
;   TELECOMMUNICATION INFORMATION:
;   TELEPHONE: 201-831-3247
;   TELEFAX: 201-831-3305
;   INFORMATION FOR SEQ ID NO: 4:
;   SEQUENCE CHARACTERISTICS:
;   LENGTH: 194 amino acids
;   TYPE: amino acid
;   TOPOLOGY: linear
;   MOLECULE TYPE: protein
US-08-459-906-4

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Query Match          98.1%; Score 255; DB 3; Length 194;
Best Local Similarity 100.0%; Pred. No. 4.3e-29;
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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```

Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49
        ||||||||||||||||||||||||||||||||||||||||||||||||
Db      4 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 51

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# RESULT 7

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US-09-949-016-8650
; Sequence 8650, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES
THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08

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Query Match 98.1%; Score 255; DB 4; Length 198;  
Best Local Similarity 100.0%; Pred. No. 4.4e-29;  
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 8
US-09-949-016-8651
; Sequence 8651, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES
THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 8651
; LENGTH: 198
; TYPE: PRT
; ORGANISM: Human
US-09-949-016-8651

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Query Match 98.1%; Score 255; DB 4; Length 198;  
Best Local Similarity 100.0%; Pred. No. 4.4e-29;  
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

RESULT 9  
US-09-949-016-8652  
; Sequence 8652, Application US/09949016  
; Patent No. 6812339  
; GENERAL INFORMATION:



Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
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 Db 47 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 94

Query Match 98.1%; Score 255; DB 4; Length 198;  
Best Local Similarity 100.0%; Pred. No. 4.4e-29;  
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
|||||

Db 47 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 94

7 TITLE OF INVENTION: Secretory Cell Lines

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;   NUMBER OF SEQUENCES:  50
;   CORRESPONDENCE ADDRESS:
;       ADDRESSEE:  Arnold, White & Durkee
;       STREET:    P. O. Box 4433
;       CITY:      Houston
;       STATE:     TX
;       COUNTRY:   USA
;       ZIP:       77210-4433
;   COMPUTER READABLE FORM:
;       MEDIUM TYPE:  Floppy disk
;       COMPUTER:     IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:     PatentIn Release #1.0, Version #1.30
;   CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  US/08/589,028
;       FILING DATE:      Concurrently Herewith
;       CLASSIFICATION:    435
;   ATTORNEY/AGENT INFORMATION:
;       NAME:             Highlander, Steven L.
;       REGISTRATION NUMBER:  47,642
;       REFERENCE/DOCKET NUMBER:  UTSD:426\HYL
;   TELECOMMUNICATION INFORMATION:
;       TELEPHONE:        (512) 418-3000
;       TELEFAX:          (512) 474-7577
;   INFORMATION FOR SEQ ID NO:  10:
;       SEQUENCE CHARACTERISTICS:
;           LENGTH:        217 amino acids
;           TYPE:           amino acid
;           STRANDEDNESS:
;           TOPOLOGY:      linear
US-08-589-028-10

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Query Match          98.1%;  Score 255;  DB 3;  Length 217;
Best Local Similarity 100.0%;  Pred. No. 4.9e-29;
Matches  48;  Conservative  0;  Mismatches  0;  Indels  0;  Gaps  0;

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Db      27 FPTIPLSRLEFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 74

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# RESULT 13

US-08-784-582-10

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; Sequence 10, Application US/08784582
; Patent No. 6110707
; GENERAL INFORMATION:
;   APPLICANT:  Newgard, Christopher B.
;   APPLICANT:  Halban, Philippe A.
;   APPLICANT:  No. 6110707mington, Karl D.
;   APPLICANT:  Clark, Samuel A.
;   APPLICANT:  Thigpen, Anice E.
;   APPLICANT:  Quaade, Christian
;   APPLICANT:  Kruse, Fred
;   APPLICANT:  McGarry, Dennis
;   TITLE OF INVENTION:  RECOMBINANT EXPRESSION OF PROTEINS FROM
;   TITLE OF INVENTION:  SECRETORY CELL LINES
;   NUMBER OF SEQUENCES:  79

```



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;   CORRESPONDENCE ADDRESS:
;   ADDRESSEE:  Arnold, White & Durkee
;   STREET:    P.O. Box 4433
;   CITY:      Houston
;   STATE:     Texas
;   COUNTRY:   USA
;   ZIP:       77210
;   COMPUTER READABLE FORM:
;   MEDIUM TYPE:  Floppy disk
;   COMPUTER:    IBM PC compatible
;   OPERATING SYSTEM:  PC-DOS/MS-DOS
;   SOFTWARE:    PatentIn Release #1.0, Version #1.30
;   CURRENT APPLICATION DATA:
;   APPLICATION NUMBER:  US/08/784,582
;   FILING DATE:    Concurrently Herewith
;   CLASSIFICATION:  435
;   PRIOR APPLICATION DATA:
;   APPLICATION NUMBER:  US 60/028,427
;   FILING DATE:    15-OCT-1996
;   PRIOR APPLICATION DATA:
;   APPLICATION NUMBER:  US 08/589,028
;   FILING DATE:    19-JAN-1996
;   ATTORNEY/AGENT INFORMATION:
;   NAME:    Highlander, Steven L.
;   REGISTRATION NUMBER:  37,642
;   REFERENCE/DOCKET NUMBER:  UTSD:514
;   TELECOMMUNICATION INFORMATION:
;   TELEPHONE:  512/418-3000
;   TELEFAX:    512/474-7577
;   INFORMATION FOR SEQ ID NO:  10:
;   SEQUENCE CHARACTERISTICS:
;   LENGTH:    217 amino acids
;   TYPE:      amino acid
;   STRANDEDNESS:
;   TOPOLOGY:  linear
US-08-784-582-10

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Query Match          98.1%;  Score 255;  DB 3;  Length 217;
Best Local Similarity 100.0%;  Pred. No. 4.9e-29;
Matches   48;  Conservative   0;  Mismatches   0;  Indels   0;  Gaps   0;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49
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Db      27  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 74

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# RESULT 14

US-08-785-271-10

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; Sequence 10, Application US/08785271
; Patent No. 6194176
; GENERAL INFORMATION:
; APPLICANT:  Newgard, Christopher B.
; APPLICANT:  Halban, Philippe A.
; APPLICANT:  No. 6194176mington, Karl D.
; APPLICANT:  Clark, Samuel A.
; APPLICANT:  Thigpen, Anice E.
; APPLICANT:  Quaade, Christian

```

```

; APPLICANT: Kruse, Fred
; TITLE OF INVENTION: RECOMBINANT EXPRESSION OF PROTEINS FROM
; TITLE OF INVENTION: SECRETORY CELL LINES
; NUMBER OF SEQUENCES: 56
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Arnold, White & Durkee
; STREET: P.O. Box 4433
; CITY: Houston
; STATE: Texas
; COUNTRY: USA
; ZIP: 77210
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/785,271
; FILING DATE: Concurrently Herewith
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/589,028
; FILING DATE: 19-JAN-1996
; ATTORNEY/AGENT INFORMATION:
; NAME: Highlander, Steven L.
; REGISTRATION NUMBER: 37,642
; REFERENCE/DOCKET NUMBER: UTSD:513
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 512/418-3000
; TELEFAX: 512/474-7577
; INFORMATION FOR SEQ ID NO: 10:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 217 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
US-08-785-271-10

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```

Query Match          98.1%; Score 255; DB 3; Length 217;
Best Local Similarity 100.0%; Pred. No. 4.9e-29;
Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
        ||||||||||||||||||||||||||||||||||||||||||||
Db      27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 74

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# RESULT 15

US-08-759-628-11

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; Sequence 11, Application US/08759628
; Patent No. 6225446

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## GENERAL INFORMATION:

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; APPLICANT: Altmann, Scott W.
; APPLICANT: Rock, Fernando L.
; APPLICANT: Bazan, J. Fernando
; APPLICANT: Kastelein, Robert A.
; TITLE OF INVENTION: MUTATIONAL VARIANTS OF MAMMLIAN PROTEINS

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;   NUMBER OF SEQUENCES:  11
;   CORRESPONDENCE ADDRESS:
;       ADDRESSEE:  DNAX Research Institute
;       STREET:    901 California Avenue
;       CITY:      Palo Alto
;       STATE:     California
;       COUNTRY:   USA
;       ZIP:       94304-1104
;   COMPUTER READABLE FORM:
;       MEDIUM TYPE:  Floppy disk
;       COMPUTER:     IBM PC compatible
;       OPERATING SYSTEM:  PC-DOS/MS-DOS
;       SOFTWARE:     PatentIn Release #1.0, Version #1.30
;   CURRENT APPLICATION DATA:
;       APPLICATION NUMBER:  US/08/759,628
;       FILING DATE:       05-DEC-1996
;       CLASSIFICATION:    435
;   PRIOR APPLICATION DATA:
;       APPLICATION NUMBER:  US 60/008,574
;       FILING DATE:       06-DEC-1995
;   ATTORNEY/AGENT INFORMATION:
;       NAME:  Ching, Edwin P.
;       REGISTRATION NUMBER:  34,090
;       REFERENCE/DOCKET NUMBER:  DX0552Q
;   TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  415-852-9196
;       TELEFAX:   415-496-1200
;   INFORMATION FOR SEQ ID NO:  11:
;   SEQUENCE CHARACTERISTICS:
;       LENGTH:  217 amino acids
;       TYPE:    amino acid
;       STRANDEDNESS:  single
;       TOPOLOGY:  linear
;   MOLECULE TYPE:  protein
;   FEATURE:
;       NAME/KEY:  Peptide
;       LOCATION:  32..53
;   FEATURE:
;       NAME/KEY:  Peptide
;       LOCATION:  94..115
;   FEATURE:
;       NAME/KEY:  Peptide
;       LOCATION:  133..153
;   FEATURE:
;       NAME/KEY:  Peptide
;       LOCATION:  192..210
;   OTHER INFORMATION:  /note= "The peptides above are
;   OTHER INFORMATION:  depicted in Figure 1"
US-08-759-628-11

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Query Match          98.1%;  Score 255;  DB 3;  Length 217;
Best Local Similarity 100.0%;  Pred. No. 4.9e-29;
Matches   48;  Conservative   0;  Mismatches   0;  Indels   0;  Gaps   0;

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Qy      2  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49
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Db      27  FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 74

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Search completed: February 11, 2005, 18:27:01  
Job time : 13.928 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: February 11, 2005, 17:42:33 ; Search time 9.31181 Seconds  
(without alignments)  
506.306 Million cell updates/sec

Title: US-10-054-873-1  
Perfect score: 260  
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....QEFEEAYIPKEQKYSFLQNP 49

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : PIR\_79:\*  
1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query		DB	ID	Description
		Match	Length			
1	255	98.1	217	1	STHU	somatotropin 1 pre
2	255	98.1	217	2	I67410	somatotropin - rhe
3	228	87.7	217	1	STHUV	somatotropin 2 pre
4	228	87.7	256	1	STHUV2	somatotropin 2 pre
5	213	81.9	212	2	I67408	chorionic somatoma
6	213	81.9	217	2	I53267	chorionic somatoma
7	205	78.8	217	2	I67411	somatotropin - rhe
8	201	77.3	217	2	I67409	chorionic somatoma
9	197	75.8	215	2	A26449	choriomammotropin
10	197	75.8	217	1	LCHUC	choriomammotropin
11	197	75.8	217	2	E32435	choriomammotropin
12	161.5	62.1	216	1	STMS	somatotropin precu
13	160.5	61.7	190	2	PN0140	somatotropin - sei

14	159.5	61.3	190	1	STHO	somatotropin - hor
15	159.5	61.3	190	2	JS0429	somatotropin - Arc
16	159.5	61.3	190	2	JK0219	somatotropin - Afr
17	159.5	61.3	216	1	STPG	somatotropin precu
18	159.5	61.3	216	1	STRT	somatotropin precu
19	159.5	61.3	216	2	I46145	somatotropin precu
20	159.5	61.3	216	2	JC4632	somatotropin precu
21	159.5	61.3	216	2	S49483	somatotropin precu
22	159.5	61.3	216	2	B49159	somatotropin - gol
23	156.5	60.2	216	2	A37782	somatotropin precu
24	155.5	59.8	190	1	A61584	somatotropin - alp
25	150	57.7	216	2	JC1514	somatotropin precu
26	148	56.9	191	2	A60625	somatotropin - gre
27	146	56.2	163	2	JN0387	somatotropin - sei
28	144	55.4	190	2	S21750	somatotropin - Rus
29	144	55.4	216	2	A60509	somatotropin precu
30	142.5	54.8	217	1	STBO	somatotropin precu
31	142.5	54.8	217	1	STGT	somatotropin precu
32	142.5	54.8	217	1	STSH	somatotropin precu
33	142.5	54.8	217	2	S32682	somatotropin - dom
34	140	53.8	216	2	S04929	somatotropin precu
35	132	50.8	190	2	A56816	somatotropin - bul
36	132	50.8	215	2	I51188	somatotropin - bul
37	128	49.2	195	2	I51250	somatotropin - bow
38	128	49.2	215	2	JS0037	somatotropin precu
39	122	46.9	199	2	B32435	choriomamotropin-
40	116	44.6	183	2	A60623	somatotropin - blu
41	98.5	37.9	87	4	I67761	EST/beta-Gal mutan
42	97	37.3	200	2	I51114	growth hormone - g
43	87	33.5	210	2	S69263	growth hormone II
44	87	33.5	210	2	S69262	growth hormone I p
45	87	33.5	210	2	S02764	somatotropin precu

# ALIGNMENTS

## RESULT 1

### STHU

somatotropin 1 precursor [validated] - human

N;Alternate names: growth hormone 1; hGH-N; pituitary somatotropin

N;Contains: growth hormone 5K peptide; somatotropin 1, long form; somatotropin 1, short form

C;Species: Homo sapiens (man)

C;Date: 24-Apr-1984 #sequence\_revision 10-Feb-1995 #text\_change 09-Jul-2004

C;Accession: A93731; A32435; A93694; A94247; A90051; A93397; A93778; A91764; A90217; A92311; A61466; S09685; I84549; A01510

R;DeNoto, F.M.; Moore, D.D.; Goodman, H.M.

Nucleic Acids Res. 9, 3719-3730, 1981

A;Title: Human growth hormone DNA sequence and mRNA structure: possible alternative splicing.

A;Reference number: A93731; MUID:82014939; PMID:6269091

A;Accession: A93731

A;Molecule type: DNA

A;Residues: 1-217 <DEN>

A;Cross-references: UNIPROT:P01241; GB:V00520

A;Note: the 20K short form somatotropin lacks residues 58-72 (32-46 in the active hormone) as the result of splicing at the alternate junction of the second intron during mRNA processing  
R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.  
Genomics 4, 479-497, 1989  
A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.  
A;Reference number: A32435; MUID:89307277; PMID:2744760  
A;Accession: A32435  
A;Molecule type: DNA  
A;Residues: 1-217 <CHE>  
A;Cross-references: GB:J03071; NID:gl83148; PIDN:AAA52549.1; PID:gl83149  
R;Roskam, W.; Rougeon, F.  
Nucleic Acids Res. 7, 305-320, 1979  
A;Title: Molecular cloning and nucleotide sequence of the human growth hormone structural gene.  
A;Reference number: A93694; MUID:80034477; PMID:386281  
A;Accession: A93694  
A;Molecule type: mRNA  
A;Residues: 1-217 <ROS>  
A;Cross-references: GB:V00519  
A;Note: 35-Pro was also found  
R;Martial, J.A.; Hallewell, R.A.; Baxter, J.D.; Goodman, H.M.  
Science 205, 602-607, 1979  
A;Title: Human growth hormone: complementary DNA cloning and expression in bacteria.  
A;Reference number: A94247; MUID:79203293; PMID:377496  
A;Accession: A94247  
A;Molecule type: mRNA  
A;Residues: 1-217 <MAR>  
R;Li, C.H.; Dixon, J.S.; Liu, W.K.  
Arch. Biochem. Biophys. 133, 70-91, 1969  
A;Title: Human pituitary growth hormone. XIX. The primary structure of the hormone.  
A;Reference number: A90048; MUID:69289202; PMID:5810834  
A;Contents: annotation  
R;Li, C.H.; Dixon, J.S.  
Arch. Biochem. Biophys. 146, 233-236, 1971  
A;Title: Human pituitary growth hormone. XXXII. The primary structure of the hormone: revision.  
A;Reference number: A90051; MUID:72143935; PMID:5144027  
A;Accession: A90051  
A;Molecule type: protein  
A;Residues: 27-94;96-217 <LIC>  
R;Niall, H.D.  
Nature New Biol. 230, 90-91, 1971  
A;Title: Revised primary structure for human growth hormone.  
A;Reference number: A93397; MUID:71139765; PMID:5279046  
A;Accession: A93397  
A;Molecule type: protein  
A;Residues: 27-51 <NIA>  
R;Niall, H.D.; Hogan, M.L.; Sauer, R.; Rosenblum, I.Y.; Greenwood, F.C.  
Proc. Natl. Acad. Sci. U.S.A. 68, 866-869, 1971  
A;Title: Sequences of pituitary and placental lactogenic and growth hormones: evolution from a primordial peptide by gene reduplication.  
A;Reference number: A93778; MUID:71153968; PMID:5279528

A;Accession: A93778  
 A;Molecule type: protein  
 A;Residues: 119-120;157-159 <NI2>  
 R;Niall, H.D.  
 in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin,  
 Griffiths, K., ed., pp.13-20, Alpha Omega Alpha Press, Cardiff, Wales, 1972  
 A;Title: The chemistry of the human lactogenic hormones.  
 A;Reference number: A94427  
 A;Contents: annotation; somatotropin revision  
 R;Bewley, T.A.; Dixon, J.S.; Li, C.H.  
 Int. J. Pept. Protein Res. 4, 281-287, 1972  
 A;Title: Sequence comparison of human pituitary growth hormone, human chorionic  
 somatomammotropin, and ovine pituitary growth and lactogenic hormones.  
 A;Reference number: A91764; MUID:73092028; PMID:4675454  
 A;Accession: A91764  
 A;Molecule type: protein  
 A;Residues: 27-217 <BEW>  
 R;Lewis, U.J.; Bonewald, L.F.; Lewis, L.J.  
 Biochem. Biophys. Res. Commun. 92, 511-516, 1980  
 A;Title: The 20,000-dalton variant of human growth hormone: location of the  
 amino acid deletions.  
 A;Reference number: A90217; MUID:80130196; PMID:7356479  
 A;Contents: somatotropin, 20K short variant  
 A;Accession: A90217  
 A;Molecule type: protein  
 A;Residues: 46-57;73-80 <LEW>  
 R;Chapman, G.E.; Rogers, K.M.; Brittain, T.; Bradshaw, R.A.; Bates, O.J.;  
 Turner, C.; Cary, P.D.; Crane-Robinson, C.  
 J. Biol. Chem. 256, 2395-2401, 1981  
 A;Title: The 20,000 molecular weight variant of human growth hormone.  
 Preparation and some physical and chemical properties.  
 A;Reference number: A92311; MUID:81117361; PMID:7462247  
 A;Contents: somatotropin, 20K short variant  
 A;Accession: A92311  
 A;Molecule type: protein  
 A;Residues: 27-57;73-79 <CHA>  
 R;Singh, R.N.P.; Seavey, B.K.; Lewis, L.J.; Lewis, U.J.  
 J. Protein Chem. 2, 425-436, 1983  
 A;Title: Human growth hormone peptide 1-43: isolation from pituitary glands.  
 A;Reference number: A61466  
 A;Accession: A61466  
 A;Molecule type: protein  
 A;Residues: 27-69 <SIN>  
 A;Note: growth hormone 5K peptide has insulin potentiating activity; its  
 physiological production is uncertain  
 R;Robson, V.M.J.; Rae, I.D.; NG, F.  
 Biol. Chem. Hoppe-Seyler 371, 423-431, 1990  
 A;Title: Identification of the aspartimide structure in a previously-reported  
 peptide.  
 A;Reference number: S09685; MUID:90334745; PMID:2378679  
 A;Accession: S09685  
 A;Molecule type: protein  
 A;Residues: 27-34,'L',36-47 <ROB>  
 R;de Vos, A.M.; Ultsch, M.; Kossiakoff, A.A.  
 Science 255, 306-312, 1992  
 A;Title: Human growth hormone and extracellular domain of its receptor: crystal  
 structure of the complex.



A;Reference number: A41728; MUID:92196577; PMID:1549776  
 A;Contents: annotation; X-ray crystallography, 2.8 angstroms  
 A;Note: the structure of the complex with growth hormone receptor is described  
 R;Gray, G.L.; Baldrige, J.S.; McKeown, K.S.; Heyneker, H.L.; Chang, C.N.  
 Gene 39, 247-254, 1985  
 A;Title: Periplasmic production of correctly processed human growth hormone in  
 Escherichia coli: natural and bacterial signal sequences are interchangeable.  
 A;Reference number: I41126; MUID:86137393; PMID:3912261  
 A;Accession: I84549  
 A;Status: preliminary; translated from GB/EMBL/DDBJ  
 A;Molecule type: mRNA  
 A;Residues: 1-26 <RES>  
 A;Cross-references: GB:M14398; NID:g183158; PIDN:AAA52554.1; PID:g183159  
 C;Comment: The gene for this hormone is transcribed only in somatotrophic cells  
 of the anterior pituitary.  
 C;Comment: About 90% of somatotropin is the 22K long form.  
 C;Genetics:  
 A;Gene: GDB:GH1  
 A;Cross-references: GDB:119982; OMIM:139250  
 A;Map position: 17q23.1-17q23.3  
 A;Introns: 4/1; 57/3; 97/3; 152/3  
 C;Superfamily: prolactin  
 C;Keywords: alternative splicing; hormone; pituitary  
 F;1-26/Domain: signal sequence #status predicted <SIG>  
 F;27-217/Product: somatotropin 1, long form #status experimental <SOL>  
 F;27-69/Product: growth hormone 5K peptide #status experimental <5KP>  
 F;27-57,73-217/Product: somatotropin 1, short form #status experimental <SOS>  
 F;79-191,208-215/Disulfide bonds: #status experimental

Query Match 98.1%; Score 255; DB 1; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 2.7e-24;  
 Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy      2  FPTIPLSRFLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
          |||
Db      27  FPTIPLSRFLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 74
```

# RESULT 2

I67410

somatotropin - rhesus macaque

N;Alternate names: growth hormone

C;Species: Macaca mulatta (rhesus macaque)

C;Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 09-Jul-2004

C;Accession: I67410; A05094

R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.

Endocrinology 133, 1744-1752, 1993

A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related  
 complementary deoxyribonucleic acids differentially expressed during pregnancy  
 in the rhesus monkey placenta.

A;Reference number: I53267; MUID:94008724; PMID:8404617

A;Accession: I67410

A;Status: translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-217 <RES>

A;Cross-references: UNIPROT:P33093; GB:L16556; NID:g293114; PIDN:AAA18842.1;  
 PID:g293115

R;Li, C.H.; Chung, D.; Lahm, H.W.; Stein, S.  
 Arch. Biochem. Biophys. 245, 287-291, 1986  
 A;Title: The primary structure of monkey pituitary growth hormone.  
 A;Reference number: A05094; MUID:86129460; PMID:3080959  
 A;Accession: A05094  
 A;Molecule type: protein  
 A;Residues: 27-99,'Q',101-178,'D',180-217 <LIC>  
 A;Note: the monkey species is not identified in the reference  
 R;Raben, M.S.  
 Science 125, 883-884, 1957  
 A;Title: Preparation of growth hormone from pituitaries of man and monkey.  
 A;Reference number: A44774  
 A;Contents: annotation; identification of source organism  
 C;Superfamily: prolactin

Query Match 98.1%; Score 255; DB 2; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 2.7e-24;  
 Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
 ||||||||||||||||||||||||||||||||||||||||||||  
 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 74

### RESULT 3

STHUV

somatotropin 2 precursor - human

N;Alternate names: growth hormone 2; growth hormone variant; hGH-V; placental somatotropin

N;Contains: somatotropin 2, long splice form; somatotropin 2, short splice form

C;Species: Homo sapiens (man)

C;Date: 17-Dec-1982 #sequence\_revision 10-Feb-1995 #text\_change 09-Jul-2004

C;Accession: D32435; B28072; A01511; I52104; A60711

R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.

Genomics 4, 479-497, 1989

A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.

A;Reference number: A32435; MUID:89307277; PMID:2744760

A;Accession: D32435

A;Molecule type: DNA

A;Residues: 1-217 <CHE>

A;Cross-references: UNIPROT:P01242; GB:J03071; NID:g183148; PIDN:AAA52552.1; PID:g183152

R;Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaver, S.A.

J. Biol. Chem. 263, 9001-9006, 1988

A;Title: Two distinct species of human growth hormone-variant mRNA in the human placenta predict the expression of novel growth hormone proteins.

A;Reference number: A92725; MUID:88243769; PMID:3379057

A;Accession: B28072

A;Molecule type: mRNA

A;Residues: 1-217 <COO>

R;Seeburg, P.H.

DNA 1, 239-249, 1982

A;Title: The human growth hormone gene family: nucleotide sequences show recent divergence and predict a new polypeptide hormone.

A;Reference number: A01511; MUID:83182010; PMID:7169009

A;Accession: A01511  
 A;Molecule type: DNA  
 A;Residues: 1-34,'P',36-217 <SEE>  
 R;Igout, A.; Scippo, M.L.; Frankenne, F.; Hennen, G.  
 Arch. Int. Physiol. Biochim. 96, 63-67, 1988  
 A;Title: Cloning and nucleotide sequence of placental hGH-V cDNA.  
 A;Reference number: I52104; MUID:89024984; PMID:2460050  
 A;Accession: I52104  
 A;Status: preliminary; translated from GB/EMBL/DDBJ  
 A;Molecule type: mRNA  
 A;Residues: 1-217 <IGO>  
 A;Cross-references: GB:M38451; NID:g183179; PIDN:AAA35891.1; PID:g183180  
 R;Frankenne, F.; Scippo, M.L.; Van Beeumen, J.; Igout, A.; Hennen, G.  
 J. Clin. Endocrinol. Metab. 71, 15-18, 1990  
 A;Title: Identification of placental human growth hormone as the growth hormone-  
 V gene expression product.  
 A;Reference number: A60711; MUID:90317018; PMID:2196278  
 A;Accession: A60711  
 A;Molecule type: protein  
 A;Residues: 27-44;46-57 <FRA>  
 A;Experimental source: tissue placenta  
 A;Note: partial glycosylation was demonstrated by lectin binding  
 C;Comment: This gene is expressed by the placenta.  
 C;Genetics:  
 A;Gene: GDB:GH2  
 A;Cross-references: GDB:119983; OMIM:139240  
 A;Map position: 17q22-17q24  
 A;Introns: 4/1; 57/3; 97/3; 152/3  
 C;Superfamily: prolactin  
 C;Keywords: alternative splicing; glycoprotein; hormone; placenta  
 F;1-26/Domain: signal sequence #status predicted <SIG>  
 F;27-217/Product: somatotropin 2, long splice form #status predicted <SOL>  
 F;27-57,73-217/Product: somatotropin 2, short splice form #status predicted  
 <SOS>  
 F;79-191,208-215/Disulfide bonds: #status predicted  
 F;166/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 87.7%; Score 228; DB 1; Length 217;  
 Best Local Similarity 91.7%; Pred. No. 6.1e-21;  
 Matches 44; Conservative 2; Mismatches 2; Indels 0; Gaps 0;  
  
 Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
 ||||||||||||||||| ||:||||:||||||||||| |||||||||||||  
 Db 27 FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNP 74

RESULT 4  
 STHUV2

somatotropin 2 precursor, splice form 2 - human  
 N;Alternate names: growth hormone variant-2; placental somatotropin form 2  
 C;Species: Homo sapiens (man)  
 C;Date: 30-Sep-1989 #sequence\_revision 10-Feb-1995 #text\_change 09-Jul-2004  
 C;Accession: A28072  
 R;Cooke, N.E.; Ray, J.; Emery, J.G.; Liebhaver, S.A.  
 J. Biol. Chem. 263, 9001-9006, 1988  
 A;Title: Two distinct species of human growth hormone-variant mRNA in the human  
 placenta predict the expression of novel growth hormone proteins.

A;Reference number: A92725; MUID:88243769; PMID:3379057  
 A;Accession: A28072  
 A;Molecule type: mRNA  
 A;Residues: 1-256 <COO>  
 A;Cross-references: UNIPROT:P01242  
 A;Note: an alternative splice junction for intron 4 is used  
 C;Genetics:  
 A;Gene: GDB:GH2  
 A;Cross-references: GDB:119983; OMIM:139240  
 A;Map position: 17q22-17q24  
 A;Introns: 4/1; 57/3; 97/3; 152/3  
 C;Superfamily: prolactin  
 C;Keywords: alternative splicing; hormone; placenta  
 F;1-26/Domain: signal sequence #status predicted <SIG>  
 F;27-256/Product: somatotropin 2 splice form 2 #status predicted <MAT>

Query Match 87.7%; Score 228; DB 1; Length 256;  
 Best Local Similarity 91.7%; Pred. No. 7.3e-21;  
 Matches 44; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
 |||||  
 Db 27 FPTIPLSRLFDNAMLRRRLYQLAYDITYQEFEEAYILKEQKYSFLQNP 74

#### RESULT 5 I67408

chorionic somatomammotropin-2 - rhesus macaque (fragment)  
 C;Species: Macaca mulatta (rhesus macaque)  
 C;Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 09-Jul-2004  
 C;Accession: I67408  
 R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
 Endocrinology 133, 1744-1752, 1993  
 A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related  
 complementary deoxyribonucleic acids differentially expressed during pregnancy  
 in the rhesus monkey placenta.  
 A;Reference number: I53267; MUID:94008724; PMID:8404617  
 A;Accession: I67408  
 A;Status: preliminary; translated from GB/EMBL/DDBJ  
 A;Molecule type: mRNA  
 A;Residues: 1-212 <RES>  
 A;Cross-references: UNIPROT:Q07368; GB:L16553; NID:g293110; PIDN:AAA18840.1;  
 PID:g293111  
 C;Superfamily: prolactin

Query Match 81.9%; Score 213; DB 2; Length 212;  
 Best Local Similarity 78.7%; Pred. No. 4.3e-19;  
 Matches 37; Conservative 9; Mismatches 1; Indels 0; Gaps 0;

Qy 3 PTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
 |::|  
 Db 23 PSVPLSRLFDHAMIQAHLHQLAFDITYQEFEEAYIPKEKKHSLMENP 69

#### RESULT 6 I53267

chorionic somatomammotropin-1 - rhesus macaque

C;Species: Macaca mulatta (rhesus macaque)  
C;Date: 31-May-1996 #sequence\_revision 31-May-1996 #text\_change 09-Jul-2004  
C;Accession: I53267  
R;Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.  
Endocrinology 133, 1744-1752, 1993  
A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related  
complementary deoxyribonucleic acids differentially expressed during pregnancy  
in the rhesus monkey placenta.  
A;Reference number: I53267; MUID:94008724; PMID:8404617  
A;Accession: I53267  
A;Status: preliminary; translated from GB/EMBL/DDBJ  
A;Molecule type: mRNA  
A;Residues: 1-217 <RES>  
A;Cross-references: UNIPROT:Q07367; GB:L16552; NID:g293108; PIDN:AAA18839.1;  
PID:g293109  
C;Superfamily: prolactin

## RESULT 7

somatotropin - rhesus macaque

C;Species: Macaca mulatta (rhesus macaque)

C;Accession: I67411

Endocrinology 133, 1744-1752, 1993

A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.

A;Accession: I67411

A;Molecule type: mRNA

A;Cross-references: UNIPROT:Q07370; GB:L16555; NID:g293116; PIDN:AAA20180.1; PID:g293117

Query Match 78.8%; Score 205; DB 2; Length 217;  
Best Local Similarity 79.2%; Pred. No. 4.4e-18;  
Matches 38; Conservative 5; Mismatches 5; Indels 0; Gaps 0;

## RESULT 8

chorionic somatomammotropin-3 - rhesus macaque

C:\Date: 31-May-1996 #sequence revision 31-May-1996 #text change 09-Jul-2004

R:Golos, T.G.; Durning, M.; Fisher, J.M.; Fowler, P.D.

A;Title: Cloning of four growth hormone/chorionic somatomammotropin-related complementary deoxyribonucleic acids differentially expressed during pregnancy in the rhesus monkey placenta.

A;Accession: I67409

A;Molecule type: mRNA

A:Cross-references: UNIPROT:Q07369; GB:L16554; NID:g293112; PIDN:AAA18841.1;

C;Superfamily: prolactin

Best Local Similarity 74.5%; Pred. No. 1.4e-17;

Matches 35; Conservative 8; Mismatches 4; Indels 0; Gaps 0;

| :: ||||| | | : : ||||| | | : | ||| : : | : |

Db 28 PSVPLSRLFDNIMMQAHRLHQLAFDITYQEFEKTYIPKEKKHSLMGNP 74

A26449

C;Species: Homo sapiens (man)

C;Accession: A26449

DNA 6, 59-70, 1987

A;Reference number: A26449; MUID:87161235; PMID:3030680

A;Molecule type: DNA

A:Cross-references: UNIPROT:P01243

F;1-26/Domain: signal sequence #status predicted <SIG>

F;27-215/Product: choriomammotropin, hCS-3 allele #status predicted <MAT>

Best Local Similarity 80.0%; Pred. No. 4.3e-17;

Matches 36; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

1:|||||:|:| | ||| ||||| |||:|||||:

Db 29 TVPLSR LFDHAM LQAHRAHQLAIDTYQE FEETYI PKDQKYSFLHD 73

RESULT 10

LCHUC

choriomammotropin A precursor [validated] - human

N;Alternate names: chorionic somatomammotropin 1; placental lactogen

C;Species: Homo sapiens (man)

C;Date: 23-Oct-1981 #sequence\_revision 23-Oct-1981 #text\_change 09-Jul-2004

C;Accession: C32435; A94422; I52342; A93833; A93192; A90054; A94427; A61283; I55229; I59658; A01512

R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.

Genomics 4, 479-497, 1989

A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.

A;Reference number: A32435; MUID:89307277; PMID:2744760

A;Accession: C32435

A;Molecule type: DNA

A;Residues: 1-217 <CHE>

A;Cross-references: UNIPROT:P01243; GB:J03071; NID:g183148; PIDN:AAA52551.1; PID:g183151

R;Goodman, H.M.; DeNoto, F.; Fiddes, J.C.; Hallewell, R.A.; Page, G.S.; Smith, S.; Tischer, E.

in Mobilization and Reassembly of Genetic Information, Scott, W.A., Werner, R., Joseph, D.R., and Schultz, J., eds., pp.155-179, Academic Press, New York, 1980

A;Reference number: A94422

A;Accession: A94422

A;Molecule type: mRNA

A;Residues: 1-217 <GOO>

R;Tanaka, M.; Masuda, N.; Watahiki, M.; Yamakawa, M.; Shimizu, K.; Nagai, J.; Nakashima, K.

Biochem. Int. 16, 287-292, 1988

A;Title: cDNA cloning of human chorionic somatomammotropin-1 mRNA whose transcription was initiated at the 5' region of the TATA box.

A;Reference number: I52342; MUID:88209096; PMID:2835050

A;Accession: I52342

A;Status: translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-3 <TAN>

A;Cross-references: GB:M35419; NID:g506822

R;Sherwood, L.M.; Burstein, Y.; Schechter, I.

Proc. Natl. Acad. Sci. U.S.A. 76, 3819-3823, 1979

A;Title: Primary structure of the NH-2-terminal extra piece of the precursor to human placental lactogen.

A;Reference number: A93833; MUID:80034970; PMID:291043

A;Accession: A93833

A;Molecule type: protein

A;Residues: 1,3-26 <SHE>

A;Experimental source: placenta

R;Shine, J.; Seeburg, P.H.; Martial, J.A.; Baxter, J.D.; Goodman, H.M.

Nature 270, 494-499, 1977

A;Title: Construction and analysis of recombinant DNA for human chorionic somatomammotropin.

A;Reference number: A93192; MUID:78071761; PMID:593368

A;Accession: A93192

A;Molecule type: DNA

A;Residues: 50-217 <SHI>

A;Experimental source: placenta

R;Li, C.H.; Dixon, J.S.; Chung, D.

Arch. Biochem. Biophys. 155, 95-110, 1973  
A;Title: Amino acid sequence of human chorionic somatomammotropin.  
A;Reference number: A90054; MUID:73201971; PMID:4712450  
A;Accession: A90054  
A;Molecule type: protein  
A;Residues: 27-217 <LIC>  
A;Experimental source: placenta  
R;Niall, H.D.  
in Prolactin and Carcinogenesis, Proc. Fourth Tenovus Workshop Prolactin,  
Griffiths, K., ed., pp.13-20, Alpha Omega Alpha Press, Cardiff, Wales, 1972  
A;Title: The chemistry of the human lactogenic hormones.  
A;Reference number: A94427  
A;Accession: A94427  
A;Molecule type: protein  
A;Residues: 27-217 <NIA>  
A;Experimental source: placenta  
R;Nic A Bhaird, N.; Tipton, K.F.  
Biochem. Soc. Trans. 19, 20S, 1991  
A;Title: Catechol-O-methyltransferase from human placenta: purification and some  
properties.  
A;Reference number: A61283; MUID:91244006; PMID:2037148  
A;Accession: A61283  
A;Molecule type: protein  
A;Residues: 27-46 <NIC>  
A;Note: choriomammotropin apparently copurified with placental catechol-O-  
methyltransferase  
R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.  
Nature New Biol. 233, 59-61, 1971  
A;Title: Amino-acid sequence of human placental lactogen.  
A;Reference number: A93401; MUID:72016313; PMID:5286363  
A;Contents: annotation  
R;Sherwood, L.M.; Handwerger, S.; McLaurin, W.D.; Lanner, M.  
Nature New Biol. 235, 64, 1972  
A;Reference number: A93405  
A;Contents: annotation  
R;Schneider, A.B.; Kowalski, K.; Russell, J.; Sherwood, L.M.  
J. Biol. Chem. 254, 3782-3787, 1979  
A;Title: Identification of the interchain disulfide bonds of dimeric human  
placental lactogen.  
A;Reference number: A92251; MUID:79173081; PMID:438159  
A;Contents: annotation; dimeric disulfide bonds  
R;Selby, M.J.; Barta, A.; Baxter, J.D.; Bell, G.I.; Eberhardt, N.L.  
J. Biol. Chem. 259, 13131-13138, 1984  
A;Title: Analysis of a major human chorionic somatomammotropin gene. Evidence  
for two functional promoter elements.  
A;Reference number: I55229; MUID:85030426; PMID:6208192  
A;Accession: I55229  
A;Status: translated from GB/EMBL/DDBJ  
A;Molecule type: DNA  
A;Residues: 1-217 <RES>  
A;Cross-references: GB:K02401; NID:g181120; PIDN:AAA52115.1; PID:g181121  
R;Seeburg, P.H.; Shine, J.; Martial, J.A.; Ullrich, A.; Goodman, H.  
Trans. Assoc. Am. Physicians 90, 109-116, 1977  
A;Title: Nucleotide sequence of a human gene coding for a polypeptide hormone.  
A;Reference number: I59658; MUID:78160787; PMID:611657  
A;Accession: I59658  
A;Status: translated from GB/EMBL/DDBJ



A;Molecule type: mRNA  
A;Residues: 160-217 <RE2>  
A;Cross-references: GB:M25118; NID:g181124; PIDN:AAA35721.1; PID:g181125  
C;Genetics:  
A;Gene: GDB:CSH1  
A;Cross-references: GDB:119084; OMIM:150200  
A;Map position: 17q22-17q24  
A;Introns: 4/1; 57/3; 97/3; 152/3  
C;Superfamily: prolactin  
C;Keywords: hormone; placenta  
F;1-26/Domain: signal sequence #status experimental <SIG>  
F;27-217/Product: choriomammotropin A #status experimental <MAT>  
F;79-191/Disulfide bonds: #status experimental  
F;208-215/Disulfide bonds: (in monomeric form) #status experimental  
F;208/Disulfide bonds: interchain (to 215 in dimeric form) #status experimental  
F;215/Disulfide bonds: interchain (to 208 in dimeric form) #status experimental

Query Match 75.8%; Score 197; DB 1; Length 217;  
Best Local Similarity 80.0%; Pred. No. 4.4e-17;  
Matches 36; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

Qy 4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQN 48  
|:|||||:|:|:| | | | | | | | | | | | | | :  
Db 29 TVPLSRLFDHAMLQAHRAHQLAIDTYQEFEEYIPKDQKYSFLHD 73

# RESULT 11

E32435

choriomammotropin B precursor - human

N;Alternate names: chorionic somatomammotropin 2

C;Species: Homo sapiens (man)

C;Date: 29-Dec-1989 #sequence\_revision 29-Dec-1989 #text\_change 09-Jul-2004

C;Accession: E32435

R;Chen, E.Y.; Liao, Y.C.; Smith, D.H.; Barrera-Saldana, H.A.; Gelinas, R.E.; Seeburg, P.H.

Genomics 4, 479-497, 1989

A;Title: The human growth hormone locus: nucleotide sequence, biology, and evolution.

A;Reference number: A32435; MUID:89307277; PMID:2744760

A;Accession: E32435

A;Status: preliminary

A;Molecule type: DNA

A;Residues: 1-217 <CHE>

A;Cross-references: UNIPROT:Q14407; GB:J03071; NID:g183148; PIDN:AAA52553.1; PID:g183153

C;Genetics:

A;Gene: GDB:CSH2

A;Cross-references: GDB:119813; OMIM:118820

A;Map position: 17q22-17q24

C;Superfamily: prolactin

Query Match 75.8%; Score 197; DB 2; Length 217;  
Best Local Similarity 80.0%; Pred. No. 4.4e-17;  
Matches 36; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

Qy 4 TIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQN 48  
|:|||||:|:|:| | | | | | | | | | | | | | :

RESULT 12

STMS

somatotropin precursor - mouse

N;Alternate names: growth hormone

C;Species: *Mus musculus* (house mouse)

C;Date: 30-Sep-1987 #sequence\_revision 30-Sep-1987 #text\_change 09-Jul-2004

C;Accession: B23911

R;Linzer, D.I.H.; Talamantes, F.

J. Biol. Chem. 260, 9574-9579, 1985

A;Title: Nucleotide sequence of mouse prolactin and growth hormone mRNAs and expression of these mRNAs during pregnancy.

A;Reference number: A92548; MUID:85261358; PMID:2991252

A;Accession: B23911

A;Molecule type: mRNA

A;Residues: 1-216 <LIN>

A;Cross-references: UNIPROT:P06880; GB:X02891; GB:K03232; NID:g51067;

PIDN:CAA26650.1; PID:g51068

C;Superfamily: prolactin

C;Keywords: anterior pituitary; growth factor; hormone

F;1-26/Domain: signal sequence #status predicted <SIG>

F;27-216/Product: somatotropin #status predicted <STN>

F;78-189,206-214/Disulfide bonds: #status predicted

Query Match 62.1%; Score 161.5; DB 1; Length 216;  
Best Local Similarity 68.1%; Pred. No. 1.1e-12;  
Matches 32; Conservative 6; Mismatches 8; Indels 1; Gaps 1;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQN 48  
|| :||| || ||:||| |||| |||:||| |||| :|| :||  
Db 27 FPAMPLSSLFSNAVLRAQHLLHQLAADTYKEFERAYIPEGQRYIS-IQN 72

RESULT 13

PN0140

somatotropin - sei whale

N;Alternate names: growth hormone

C;Species: *Balaenoptera borealis* (sei whale)

C;Date: 07-May-1993 #sequence\_revision 07-May-1993 #text\_change 09-Jul-2004

C;Accession: PN0140

R;Yudaev, N.A.; Pankov, Y.A.; Bulatov, A.A.; Osipova, T.A.

Biokhimiia 47, 1059-1069, 1982

A;Title: Amino acid sequence of seiwhale somatotropin.

A;Reference number: PN0140; MUID:83000569; PMID:7115813

A;Accession: PN0140

A;Molecule type: protein

A;Residues: 1-190 <YUD>

A;Cross-references: UNIPROT:P33092

A;Note: article in Russian with English abstract

C;Superfamily: prolactin

C;Keywords: growth factor; hormone

F;52-163,180-188/Disulfide bonds: #status predicted

Query Match 61.7%; Score 160.5; DB 2; Length 190;  
Best Local Similarity 68.1%; Pred. No. 1.3e-12;

Matches 32; Conservative 6; Mismatches 8; Indels 1; Gaps 1;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQN 48  
 || :||| || ||:||| ||:|| |||:||| ||||: |:| ||||  
 Db 1 FPAMPLSSLFANAVLRAQHLHELAAADTYKEFERAYIPEGQRY-FLQN 46

RESULT 14

STHO

somatotropin - horse

N;Alternate names: growth hormone

C;Species: Equus caballus (domestic horse)

C;Date: 13-Jul-1981 #sequence\_revision 13-Jul-1981 #text\_change 23-Aug-1996

C;Accession: A91772; A91395; A91383; A90240; A01514

R;Zakin, M.M.; Poskus, E.; Langton, A.A.; Ferrara, P.; Santome, J.A.; Dellacha, J.M.; Paladini, A.C.

Int. J. Pept. Protein Res. 8, 435-444, 1976

A;Title: Primary structure of equine growth hormone.

A;Reference number: A91772; MUID:77005410; PMID:965151

A;Accession: A91772

A;Molecule type: protein

A;Residues: 1-190 <ZAK>

R;Zakin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.  
 FEBS Lett. 34, 353-355, 1973

A;Title: The amino acid sequence of equine growth hormone.

A;Reference number: A91395; MUID:74020362; PMID:4747849

A;Accession: A91395

A;Molecule type: protein

A;Residues: 1-190 <ZA2>

R;Zakin, M.M.; Poskus, E.; Dellacha, J.M.; Paladini, A.C.; Santome, J.A.  
 FEBS Lett. 25, 77-82, 1972

A;Title: Amino acid sequences around the cystine residues in equine growth hormone.

A;Reference number: A91383

A;Accession: A91383

A;Molecule type: protein

A;Residues: 42-69;157-190 <ZA3>

R;Oliver, L.; Hartree, A.S.

Biochem. J. 109, 19-24, 1968

A;Title: Amino acid sequences around the cystine residues in horse growth hormone.

A;Reference number: A90240; MUID:68368390; PMID:4876100

A;Accession: A90240

A;Molecule type: protein

A;Residues: 176-190 <OLI>

C;Superfamily: prolactin

C;Keywords: hormone; pituitary

F;52-163,180-188/Disulfide bonds: #status experimental

Query Match 61.3%; Score 159.5; DB 1; Length 190;

Best Local Similarity 68.1%; Pred. No. 1.7e-12;

Matches 32; Conservative 6; Mismatches 8; Indels 1; Gaps 1;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQN 48  
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 Db 1 FPAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYIS-IQN 46

RESULT 15

JS0429

somatotropin - Arctic fox

N;Alternate names: growth hormone

C;Species: Alopex lagopus (Arctic fox)

C;Date: 07-Sep-1990 #sequence\_revision 07-Sep-1990 #text\_change 18-Jun-1993

C;Accession: JS0429

R;Li, C.H.; Izdebski, J.; Chung, D.

Int. J. Pept. Protein Res. 33, 70-72, 1989

A;Title: Primary structure of fox pituitary growth hormone.

A;Reference number: JS0429; MUID:89254275; PMID:2722401

A;Accession: JS0429

A;Molecule type: protein

A;Residues: 1-190 <LIC>

A;Note: residues 1-41 were sequenced; the sequence of residues 42-190 to is predicted from the amino acid composition of tryptic fragments and alignment with bovine growth hormone

C;Superfamily: prolactin

Query Match 61.3%; Score 159.5; DB 2; Length 190;

Best Local Similarity 68.1%; Pred. No. 1.7e-12;

Matches 32; Conservative 6; Mismatches 8; Indels 1; Gaps 1;

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Qy      2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQN 48
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Db      1 FFAMPLSSLFANAVLRAQHLHQLAADTYKEFERAYIPEGQRYS-IQN 46
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Search completed: February 11, 2005, 18:24:31

Job time : 10.3118 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: February 11, 2005, 18:23:02 ; Search time 35.6199 Seconds  
(without alignments)  
449.487 Million cell updates/sec

Title: US-10-054-873-1  
Perfect score: 260  
Sequence: 1 MFPTIPLSRFLDNAMLRHR.....QEFEAYIPKEQKYSFLQNP 49

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1376875 seqs, 326749119 residues

Total number of hits satisfying chosen parameters: 1376875

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Published Applications\_AA:\*

- 1: /cgn2\_6/ptodata/1/pubpaa/US07\_PUBCOMB.pep:\*
- 2: /cgn2\_6/ptodata/1/pubpaa/PCT\_NEW\_PUB.pep:\*
- 3: /cgn2\_6/ptodata/1/pubpaa/US06\_NEW\_PUB.pep:\*
- 4: /cgn2\_6/ptodata/1/pubpaa/US06\_PUBCOMB.pep:\*
- 5: /cgn2\_6/ptodata/1/pubpaa/US07\_NEW\_PUB.pep:\*
- 6: /cgn2\_6/ptodata/1/pubpaa/PCTUS\_PUBCOMB.pep:\*
- 7: /cgn2\_6/ptodata/1/pubpaa/US08\_NEW\_PUB.pep:\*
- 8: /cgn2\_6/ptodata/1/pubpaa/US08\_PUBCOMB.pep:\*
- 9: /cgn2\_6/ptodata/1/pubpaa/US09A\_PUBCOMB.pep:\*
- 10: /cgn2\_6/ptodata/1/pubpaa/US09B\_PUBCOMB.pep:\*
- 11: /cgn2\_6/ptodata/1/pubpaa/US09C\_PUBCOMB.pep:\*
- 12: /cgn2\_6/ptodata/1/pubpaa/US09\_NEW\_PUB.pep:\*
- 13: /cgn2\_6/ptodata/1/pubpaa/US10A\_PUBCOMB.pep:\*
- 14: /cgn2\_6/ptodata/1/pubpaa/US10B\_PUBCOMB.pep:\*
- 15: /cgn2\_6/ptodata/1/pubpaa/US10C\_PUBCOMB.pep:\*
- 16: /cgn2\_6/ptodata/1/pubpaa/US10D\_PUBCOMB.pep:\*
- 17: /cgn2\_6/ptodata/1/pubpaa/US10\_NEW\_PUB.pep:\*
- 18: /cgn2\_6/ptodata/1/pubpaa/US11\_NEW\_PUB.pep:\*
- 19: /cgn2\_6/ptodata/1/pubpaa/US60\_NEW\_PUB.pep:\*
- 20: /cgn2\_6/ptodata/1/pubpaa/US60\_PUBCOMB.pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	260	100.0	49	13	US-10-054-873-1	Sequence 1, Appli
2	260	100.0	92	13	US-10-054-873-2	Sequence 2, Appli
3	260	100.0	107	13	US-10-054-873-6	Sequence 6, Appli
4	260	100.0	134	10	US-09-819-094-24	Sequence 24, Appl
5	260	100.0	134	15	US-10-714-067-24	Sequence 24, Appl
6	260	100.0	150	13	US-10-054-873-7	Sequence 7, Appli
7	260	100.0	188	15	US-10-621-693-18	Sequence 18, Appl
8	260	100.0	192	10	US-09-819-094-23	Sequence 23, Appl
9	260	100.0	192	15	US-10-621-693-8	Sequence 8, Appli
10	260	100.0	192	15	US-10-621-693-78	Sequence 78, Appl
11	260	100.0	192	15	US-10-621-693-86	Sequence 86, Appl
12	260	100.0	192	15	US-10-714-067-23	Sequence 23, Appl
13	260	100.0	193	15	US-10-621-693-42	Sequence 42, Appl
14	260	100.0	206	15	US-10-621-693-72	Sequence 72, Appl
15	260	100.0	391	15	US-10-621-693-51	Sequence 51, Appl
16	260	100.0	574	15	US-10-621-693-32	Sequence 32, Appl
17	260	100.0	576	15	US-10-621-693-39	Sequence 39, Appl
18	260	100.0	589	15	US-10-621-693-53	Sequence 53, Appl
19	260	100.0	786	15	US-10-621-693-55	Sequence 55, Appl
20	260	100.0	810	15	US-10-621-693-76	Sequence 76, Appl
21	255	98.1	178	17	US-10-741-600-946	Sequence 946, App
22	255	98.1	191	10	US-09-984-010-23	Sequence 23, Appl
23	255	98.1	191	14	US-10-153-207-1	Sequence 1, Appli
24	255	98.1	191	14	US-10-400-377-1	Sequence 1, Appli
25	255	98.1	191	14	US-10-400-708-1	Sequence 1, Appli
26	255	98.1	191	14	US-10-298-148-1	Sequence 1, Appli
27	255	98.1	191	15	US-10-646-798-2	Sequence 2, Appli
28	255	98.1	191	15	US-10-621-693-2	Sequence 2, Appli
29	255	98.1	191	15	US-10-621-693-21	Sequence 21, Appl
30	255	98.1	191	15	US-10-621-693-80	Sequence 80, Appl
31	255	98.1	191	15	US-10-621-693-82	Sequence 82, Appl
32	255	98.1	191	15	US-10-621-693-84	Sequence 84, Appl
33	255	98.1	191	16	US-10-718-340-1	Sequence 1, Appli
34	255	98.1	191	16	US-10-658-834A-850	Sequence 850, App
35	255	98.1	191	16	US-10-658-834A-851	Sequence 851, App
36	255	98.1	191	16	US-10-658-834A-852	Sequence 852, App
37	255	98.1	191	16	US-10-658-834A-853	Sequence 853, App
38	255	98.1	191	16	US-10-658-834A-854	Sequence 854, App
39	255	98.1	191	16	US-10-658-834A-855	Sequence 855, App
40	255	98.1	191	16	US-10-658-834A-856	Sequence 856, App
41	255	98.1	191	16	US-10-658-834A-857	Sequence 857, App
42	255	98.1	191	16	US-10-658-834A-858	Sequence 858, App
43	255	98.1	191	16	US-10-658-834A-859	Sequence 859, App
44	255	98.1	191	16	US-10-658-834A-860	Sequence 860, App
45	255	98.1	191	16	US-10-658-834A-861	Sequence 861, App

#### ALIGNMENTS

##### RESULT 1

US-10-054-873-1

; Sequence 1, Application US/10054873

; Publication No. US20020164712A1



```

;      NUMBER OF SEQUENCES: 7
;      CORRESPONDENCE ADDRESS:
;          ADDRESSEE: Townsend and Townsend and Crew LLP
;          STREET: Two Embarcadero Center, Eighth Floor
;          CITY: San Francisco
;          STATE: California
;          COUNTRY: USA
;          ZIP: 94111-3834
;      COMPUTER READABLE FORM:
;          MEDIUM TYPE: Floppy disk
;          COMPUTER: IBM PC compatible
;          OPERATING SYSTEM: PC-DOS/MS-DOS
;          SOFTWARE: PatentIn Release #1.0, Version #1.30
;      CURRENT APPLICATION DATA:
;          APPLICATION NUMBER: US/10/054,873
;          FILING DATE: 22-Jan-2002
;          CLASSIFICATION: <Unknown>
;      PRIOR APPLICATION DATA:
;          APPLICATION NUMBER: WO PCT/CN98/00052
;          FILING DATE: 31-MAR-1998
;          APPLICATION NUMBER: US 09/423,100
;          FILING DATE: 11-DEC-2000
;      ATTORNEY/AGENT INFORMATION:
;          NAME: Mycroft, Frank J
;          REGISTRATION NUMBER: 46,946
;          REFERENCE/DOCKET NUMBER: 020167-000130US
;      INFORMATION FOR SEQ ID NO: 2:
;          SEQUENCE CHARACTERISTICS:
;              LENGTH: 92 amino acids
;              TYPE: amino acid
;              STRANDEDNESS: <Unknown>
;              TOPOLOGY: linear
;          MOLECULE TYPE: protein
;          SEQUENCE DESCRIPTION: SEQ ID NO: 2:
US-10-054-873-2

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Query Match          100.0%;  Score 260;  DB 13;  Length 92;
Best Local Similarity 100.0%;  Pred. No. 1.9e-26;
Matches    49;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
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Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

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# RESULT 3

US-10-054-873-6

; Sequence 6, Application US/10054873

; Publication No. US20020164712A1

; GENERAL INFORMATION:

; APPLICANT: Gan, Zhong Ru

; TITLE OF INVENTION: Chimeric Protein Containing an

; Intramolecular Chaperone-Like Sequence

; NUMBER OF SEQUENCES: 7

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Townsend and Townsend and Crew LLP

; STREET: Two Embarcadero Center, Eighth Floor



```

;          CITY: San Francisco
;          STATE: California
;          COUNTRY: USA
;          ZIP: 94111-3834
;    COMPUTER READABLE FORM:
;          MEDIUM TYPE: Floppy disk
;          COMPUTER: IBM PC compatible
;          OPERATING SYSTEM: PC-DOS/MS-DOS
;          SOFTWARE: PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;          APPLICATION NUMBER: US/10/054,873
;          FILING DATE: 22-Jan-2002
;          CLASSIFICATION: <Unknown>
;    PRIOR APPLICATION DATA:
;          APPLICATION NUMBER: WO PCT/CN98/00052
;          FILING DATE: 31-MAR-1998
;          APPLICATION NUMBER: US 09/423,100
;          FILING DATE: 11-DEC-2000
;    ATTORNEY/AGENT INFORMATION:
;          NAME: Mycroft, Frank J
;          REGISTRATION NUMBER: 46,946
;          REFERENCE/DOCKET NUMBER: 020167-000130US
;    INFORMATION FOR SEQ ID NO: 6:
;          SEQUENCE CHARACTERISTICS:
;            LENGTH: 107 amino acids
;            TYPE: amino acid
;            STRANDEDNESS: <Unknown>
;            TOPOLOGY: linear
;          MOLECULE TYPE: protein
;          SEQUENCE DESCRIPTION: SEQ ID NO: 6:
US-10-054-873-6

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Query Match          100.0%;  Score 260;  DB 13;  Length 107;
Best Local Similarity 100.0%;  Pred. No. 2.2e-26;
Matches   49;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Qy      1 MFPTIPLSRLEFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
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Db      1 MFPTIPLSRLEFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

```

#### RESULT 4

US-09-819-094-24

; Sequence 24, Application US/09819094

; Publication No. US20030186382A1

; GENERAL INFORMATION:

; APPLICANT: Weiner, Richard I.

; APPLICANT: Martial, Joseph A.

; APPLICANT: Struman, Ingrid

; APPLICANT: Taylor, Robert

; APPLICANT: Bentzien, Frauke

; TITLE OF INVENTION: No. US20030186382A1el Antiangiogenic Peptide Agents and Their

; TITLE OF INVENTION: Therapeutic and Diagnostic Use

; FILE REFERENCE: UCSF-018/02US

; CURRENT APPLICATION NUMBER: US/09/819,094

; CURRENT FILING DATE: 2001-03-27

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; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 24
;   LENGTH: 134
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-819-094-24
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Query Match      100.0%; Score 260; DB 10; Length 134;
Best Local Similarity 100.0%; Pred. No. 2.9e-26;
Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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QY      1 MFPTIPLSRLEDNAMLRAHRLHQAFDITYQEFEAYIPKEQKYSFLQNP 49  
         |||||||

Dd      1 MFPTIPLSRLEDNAMLRAHRLHQAFDITYQEFEAYIPKEQKYSFLQNP 49

## RESULT 5

US-10-714-067-24

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; Sequence 24, Application US/10714067
; Publication No. US20040077054A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: Novel Antiangiogenic Peptide Agents and Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/10/714,067
; CURRENT FILING DATE: 2003-11-14
; PRIOR APPLICATION NUMBER: US/09/819,094
; PRIOR FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 24
; LENGTH: 134
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-714-067-24

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Query Match      100.0%; Score 260; DB 15; Length 134;
Best Local Similarity 100.0%; Pred. No. 2.9e-26;
Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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Qy 1 MFPTIPLSRFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
 |||

Db 1 MFPTIPLSRFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49

RESULT 6

US-10-054-873-7

; Sequence 7, Application US/10054873

; Publication No. US20020164712A1

; GENERAL INFORMATION:

; APPLICANT: Gan, Zhong Ru

; TITLE OF INVENTION: Chimeric Protein Containing an  
Intramolecular Chaperone-Like Sequence

; NUMBER OF SEQUENCES: 7

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Townsend and Townsend and Crew LLP

; STREET: Two Embarcadero Center, Eighth Floor

; CITY: San Francisco

; STATE: California

; COUNTRY: USA

; ZIP: 94111-3834

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: PatentIn Release #1.0, Version #1.30

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/10/054,873

; FILING DATE: 22-Jan-2002

; CLASSIFICATION: <Unknown>

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: WO PCT/CN98/00052

; FILING DATE: 31-MAR-1998

; APPLICATION NUMBER: US 09/423,100

; FILING DATE: 11-DEC-2000

; ATTORNEY/AGENT INFORMATION:

; NAME: Mycroft, Frank J

; REGISTRATION NUMBER: 46,946

; REFERENCE/DOCKET NUMBER: 020167-000130US

; INFORMATION FOR SEQ ID NO: 7:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 150 amino acids

; TYPE: amino acid

; STRANDEDNESS: <Unknown>

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; SEQUENCE DESCRIPTION: SEQ ID NO: 7:

US-10-054-873-7

Query Match 100.0%; Score 260; DB 13; Length 150;

Best Local Similarity 100.0%; Pred. No. 3.3e-26;

Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49

RESULT 7

US-10-621-693-18

; Sequence 18, Application US/10621693

; Publication No. US20040059093A1

```
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 18
; LENGTH: 188
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
US-10-621-693-18
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Query Match          100.0%; Score 260; DB 15; Length 188;
Best Local Similarity 100.0%; Pred. No. 4.4e-26;
Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
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Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
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# RESULT 8

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US-09-819-094-23
; Sequence 23, Application US/09819094
; Publication No. US20030186382A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, Richard I.
; APPLICANT: Martial, Joseph A.
; APPLICANT: Struman, Ingrid
; APPLICANT: Taylor, Robert
; APPLICANT: Bentzien, Frauke
; TITLE OF INVENTION: No. US20030186382A1el Antiangiogenic Peptide Agents and
Their
; TITLE OF INVENTION: Therapeutic and Diagnostic Use
; FILE REFERENCE: UCSF-018/02US
; CURRENT APPLICATION NUMBER: US/09/819,094
; CURRENT FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: 09/076,675
; PRIOR FILING DATE: 1998-05-12
; PRIOR APPLICATION NUMBER: 60/046,394
; PRIOR FILING DATE: 1997-05-12
; NUMBER OF SEQ ID NOS: 34
; SEQ ID NO 23
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-819-094-23
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; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 78
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
US-10-621-693-78
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Query Match          100.0%; Score 260; DB 15; Length 192;
Best Local Similarity 100.0%; Pred. No. 4.5e-26;
Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
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Qy      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
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Db      1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49
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RESULT 11

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US-10-621-693-86
; Sequence 86, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
; APPLICANT: Gentide Biopharmaceuticals, Inc.
; APPLICANT: Bussell, Stuart
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
; FILE REFERENCE: GNT-00101.P.1-US
; CURRENT APPLICATION NUMBER: US/10/621,693
; CURRENT FILING DATE: 2003-07-16
; PRIOR APPLICATION NUMBER: US 60/396,466
; PRIOR FILING DATE: 2002-07-16
; NUMBER OF SEQ ID NOS: 86
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 86
; LENGTH: 192
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: synthetic sequence
; FEATURE:
; NAME/KEY: MISC_FEATURE
; LOCATION: (2)..(192)
; OTHER INFORMATION: sequence is repeated N+2 times, where N is a positive
whole numbe
; FEATURE:
; NAME/KEY: mat_peptide
; LOCATION: (1)..()
US-10-621-693-86
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Query Match          100.0%; Score 260; DB 15; Length 192;
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Qy 1 MFPTIPLSRFDNAMLRAHRLHQAFDITYQEFEEAYIPKEQKYSFLQNP 49  
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  
Db 1 MFPTIPLSRFDNAMLRAHRLHQAFDITYQEFEEAYIPKEQKYSFLQNP 49

US-10-714-067-23

QY 1 MFPTIPLSRFLDNAMLR A HRLHQLAFD TYQEFEEAYIPKEQKYSFLQNP 49  
|||  
Db 1 MFPTIPLSRFLDNAMLR A HRLHQLAFD TYQEFEEAYIPKEQKYSFLQNP 49

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; Sequence 42, Application US/10621693
; Publication No. US20040059093A1
; GENERAL INFORMATION:
;   APPLICANT: Gentide Biopharmaceuticals, Inc.
;   APPLICANT: Bussell, Stuart
;   TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN
SEQUENCES AS
;   TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS
;   FILE REFERENCE: GNT-00101.P.1-US
;   CURRENT APPLICATION NUMBER: US/10/621,693

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US-10-621-693-51

; Sequence 51, Application US/10621693  
; Publication No. US20040059093A1  
; GENERAL INFORMATION:  
; APPLICANT: Gentide Biopharmaceuticals, Inc.  
; APPLICANT: Bussell, Stuart  
; TITLE OF INVENTION: METHODS TO CONSTRUCT MULTIMERIC DNA AND POLYMERIC PROTEIN  
SEQUENCES AS  
; TITLE OF INVENTION: DIRECT FUSIONS OR WITH LINKERS  
; FILE REFERENCE: GNT-00101.P.1-US  
; CURRENT APPLICATION NUMBER: US/10/621,693  
; CURRENT FILING DATE: 2003-07-16  
; PRIOR APPLICATION NUMBER: US 60/396,466  
; PRIOR FILING DATE: 2002-07-16  
; NUMBER OF SEQ ID NOS: 86  
; SOFTWARE: PatentIn version 3.0  
; SEQ ID NO 51  
; LENGTH: 391  
; TYPE: PRT  
; ORGANISM: Artificial  
; FEATURE:  
; OTHER INFORMATION: synthetic sequence  
; FEATURE:  
; NAME/KEY: mat\_peptide  
; LOCATION: (1)..()

US-10-621-693-51

Query Match 100.0%; Score 260; DB 15; Length 391;  
Best Local Similarity 100.0%; Pred. No. 1e-25;  
Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
|  
Db 1 MFPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49

Search completed: February 11, 2005, 19:03:50  
Job time : 36.6199 secs

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: February 11, 2005, 17:42:04 ; Search time 42.762 Seconds  
(without alignments)  
586.780 Million cell updates/sec

Title: US-10-054-873-1  
Perfect score: 260  
Sequence: 1 MFPTIPLSRLFDNAMLRAHR.....QEFEEAYIPKEQKYSFLQNP 49

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : UniProt\_03:\*  
1: uniprot\_sprot:\*  
2: uniprot\_trembl:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Query		DB	ID	Description
	Score	Match Length			
1	255	98.1 217	1	SOMA_HUMAN	P01241 homo sapien
2	255	98.1 217	1	SOMA_MACMU	P33093 macaca mula
3	255	98.1 217	1	SOMA_PANTR	P58756 pan troglod
4	255	98.1 217	2	Q6IYF0	Q6iyf0 homo sapien
5	251	96.5 217	2	Q6IYF1	Q6iyf1 homo sapien
6	249	95.8 217	1	SOMA_CALJA	Q9gmb3 callithrix
7	249	95.8 217	1	SOMA_SAIBB	P58343 saimiri bol
8	249	95.8 217	2	Q8WNE0	Q8wne0 ateles geof
9	236	90.8 217	1	SOM2_PANTR	P58757 pan troglod
10	228	87.7 217	1	SOM2_HUMAN	P01242 homo sapien
11	228	87.7 217	2	Q6FH32	Q6fh32 homo sapien
12	228	87.7 217	2	Q6FH54	Q6fh54 homo sapien
13	228	87.7 245	2	O14644	O14644 homo sapien
14	215	82.7 184	2	Q866T9	Q866t9 pan troglod
15	213	81.9 212	2	Q07368	Q07368 macaca mula

16	213	81.9	217	2	Q07367	Q07367 macaca mula
17	205	78.8	217	2	Q866U1	Q866u1 pan troglod
18	201	77.3	217	2	Q07369	Q07369 macaca mula
19	201	77.3	217	2	Q866T8	Q866t8 pan troglod
20	199	76.5	217	1	SOM2_MACMU	Q07370 macaca mula
21	197	75.8	217	1	CSH_HUMAN	P01243 homo sapien
22	197	75.8	217	2	Q6PF11	Q6pf11 homo sapien
23	195	75.0	217	2	Q8WND9	Q8wnd9 ateles geof
24	186	71.5	217	2	Q866U0	Q866u0 pan troglod
25	170	65.4	217	2	Q8MI74	Q8mi74 callithrix
26	161.5	62.1	216	1	SOMA_MOUSE	P06880 mus musculu
27	160.5	61.7	190	1	SOMA_BALBO	P33092 balaenopter
28	160.5	61.7	216	2	O70615	O70615 spalax leuc
29	159.5	61.3	52	2	Q9TV91	Q9tv91 equus cabal
30	159.5	61.3	184	2	Q69B30	Q69b30 ateles geof
31	159.5	61.3	190	1	SOMA_LOXAF	P20392 loxodonta a
32	159.5	61.3	190	1	SOMA_VULVU	P10766 vulpes vulp
33	159.5	61.3	216	1	SOMA_BALPH	Q659q8 balaenopter
34	159.5	61.3	216	1	SOMA_CANFA	P33711 canis famil
35	159.5	61.3	216	1	SOMA_FELCA	P46404 felis silve
36	159.5	61.3	216	1	SOMA_HORSE	P01245 equus cabal
37	159.5	61.3	216	1	SOMA_MESAU	P37886 mesocricetu
38	159.5	61.3	216	1	SOMA_PIG	P01248 sus scrofa
39	159.5	61.3	216	1	SOMA_RABIT	P46407 oryctolagus
40	159.5	61.3	216	1	SOMA_RAT	P01244 rattus norv
41	159.5	61.3	216	2	Q8HYE5	Q8hye5 ailuropoda
42	159.5	61.3	216	2	Q8MI73	Q8mi73 delphinus d
43	159.5	61.3	216	2	Q7YQB8	Q7yqb8 hippopotamu
44	159.5	61.3	217	1	SOMA_GALSE	Q9gka1 galago sene
45	159.5	61.3	217	1	SOMA_NYCPY	Q9gmb2 nycticebus

# ALIGNMENTS

## RESULT 1

### SOMA\_HUMAN

ID SOMA\_HUMAN STANDARD; PRT; 217 AA.  
AC P01241; Q14405; Q16631; Q9HBZ1; Q9UMJ7; Q9UNL5;  
DT 21-JUL-1986 (Rel. 01, Created)  
DT 01-MAR-1992 (Rel. 21, Last sequence update)  
DT 25-OCT-2004 (Rel. 45, Last annotation update)  
DE Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth  
DE hormone) (Growth hormone 1).  
GN Name=GH1;  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A. (ISOFORM 1).  
RX MEDLINE=80034477; PubMed=386281;  
RA Roskam W., Rougeon F.;  
RT "Molecular cloning and nucleotide sequence of the human growth hormone  
RT structural gene.";  
RL Nucleic Acids Res. 7:305-320(1979).  
RN [2]

RP SEQUENCE FROM N.A. (ISOFORM 1).  
 RX MEDLINE=79203293; PubMed=377496;  
 RA Martial J.A., Hallewell R.A., Baxter J.D., Goodman H.M.;  
 RT "Human growth hormone: complementary DNA cloning and expression in  
 RT bacteria.";  
 RL Science 205:602-607(1979).  
 RN [3]  
 RP SEQUENCE FROM N.A. (ISOFORM 1), AND POSSIBLE ALTERNATIVE SPLICING.  
 RX MEDLINE=82014939; PubMed=6269091;  
 RA Denoto F.M., Moore D.D., Goodman H.M.;  
 RT "Human growth hormone DNA sequence and mRNA structure: possible  
 RT alternative splicing.";  
 RL Nucleic Acids Res. 9:3719-3730(1981).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=83182010; PubMed=7169009;  
 RA Seeburg P.H.;  
 RT "The human growth hormone gene family: nucleotide sequences show  
 RT recent divergence and predict a new polypeptide hormone.";  
 RL DNA 1:239-249(1982).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=89307277; PubMed=2744760;  
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,  
 RA Seeburg P.H.;  
 RT "The human growth hormone locus: nucleotide sequence, biology, and  
 RT evolution.";  
 RL Genomics 4:479-497(1989).  
 RN [6]  
 RP SEQUENCE FROM N.A. (ISOFORM 3).  
 RC TISSUE=Pituitary;  
 RA Gu J., Huang Q.-H., Li N., Xu S.-H., Han Z.-G., Fu G., Chen Z.;  
 RT "A novel gene expressed in human pituitary.";  
 RL Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.  
 RN [7]  
 RP SEQUENCE FROM N.A. (ISOFORM 4).  
 RC TISSUE=Pituitary;  
 RX MEDLINE=20402571; PubMed=10931946; DOI=10.1073/pnas.160270997;  
 RA Hu R.-M., Han Z.-G., Song H.-D., Peng Y.-D., Huang Q.-H., Ren S.-X.,  
 RA Gu Y.-J., Huang C.-H., Li Y.-B., Jiang C.-L., Fu G., Zhang Q.-H.,  
 RA Gu B.-W., Dai M., Mao Y.-F., Gao G.-F., Rong R., Ye M., Zhou J.,  
 RA Xu S.-H., Gu J., Shi J.-X., Jin W.-R., Zhang C.-K., Wu T.-M.,  
 RA Huang G.-Y., Chen Z., Chen M.-D., Chen J.-L.;  
 RT "Gene expression profiling in the human hypothalamus-pituitary-adrenal  
 RT axis and full-length cDNA cloning.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 97:9543-9548(2000).  
 RN [8]  
 RP SEQUENCE OF 1-26 FROM N.A.  
 RX MEDLINE=86137393; PubMed=3912261; DOI=10.1016/0378-1119(85)90319-1;  
 RA Gray G.L., Baldrige J.S., McKeown K.S., Heyneker H.L., Chang C.N.;  
 RT "Periplasmic production of correctly processed human growth hormone in  
 RT Escherichia coli: natural and bacterial signal sequences are  
 RT interchangeable.";  
 RL Gene 39:247-254(1985).  
 RN [9]  
 RP SEQUENCE OF 27-217.  
 RX MEDLINE=69289202; PubMed=5810834;

RA Li C.H., Dixon J.S., Liu W.-K.;  
 RT "Human pituitary growth hormone. XIX. The primary structure of the  
 RT hormone.";  
 RL Arch. Biochem. Biophys. 133:70-91(1969).  
 RN [10]  
 RP SEQUENCE OF 27-217, AND REVISIONS.  
 RX MEDLINE=72143935; PubMed=5144027;  
 RA Li C.H., Dixon J.S.;  
 RT "Human pituitary growth hormone. 32. The primary structure of the  
 RT hormone: revision.";  
 RL Arch. Biochem. Biophys. 146:233-236(1971).  
 RN [11]  
 RP REVISION.  
 RX MEDLINE=73092028; PubMed=4675454;  
 RA Bewley T.A., Dixon J.S., Li C.H.;  
 RT "Sequence comparison of human pituitary growth hormone, human  
 RT chorionic somatomammotropin, and ovine pituitary growth and lactogenic  
 RT hormones.";  
 RL Int. J. Pept. Protein Res. 4:281-287(1972).  
 RN [12]  
 RP SEQUENCE OF 27-61 AND 102-124.  
 RX MEDLINE=71139765; PubMed=5279046;  
 RA Niall H.D.;  
 RT "Revised primary structure for human growth hormone.";  
 RL Nature New Biol. 230:90-91(1971).  
 RN [13]  
 RP REVISIONS TO 119-120 AND 157-159.  
 RX MEDLINE=71153968; PubMed=5279528;  
 RA Niall H.D., Hogan M.L., Sauer R., Rosenblum I.Y., Greenwood F.C.;  
 RT "Sequences of pituitary and placental lactogenic and growth hormones:  
 RT evolution from a primordial peptide by gene reduplication.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 68:866-869(1971).  
 RN [14]  
 RP REVISION.  
 RA Niall H.D.;  
 RT "The chemistry of the human lactogenic hormones.";  
 RL (In) Griffiths K. (eds.);  
 RL Prolactin and carcinogenesis, Proc. fourth tenovus workshop prolactin,  
 RL pp.13-20, Alpha Omega Alpha Press, Cardiff (1972).  
 RN [15]  
 RP SEQUENCE OF 27-79 (ISOFORM 2).  
 RX MEDLINE=81117361; PubMed=7462247;  
 RA Chapman G.E., Rogers K.M., Brittain T., Bradshaw R.A., Bates O.J.,  
 RA Turner C., Cary P.D., Crane-Robinson C.;  
 RT "The 20,000 molecular weight variant of human growth hormone.  
 RT Preparation and some physical and chemical properties.";  
 RL J. Biol. Chem. 256:2395-2401(1981).  
 RN [16]  
 RP SEQUENCE OF 46-80 (ISOFORM 2).  
 RX MEDLINE=80130196; PubMed=7356479;  
 RA Lewis U.J., Bonewald L.F., Lewis L.J.;  
 RT "The 20,000-dalton variant of human growth hormone: location of the  
 RT amino acid deletions.";  
 RL Biochem. Biophys. Res. Commun. 92:511-516(1980).  
 RN [17]  
 RP DEAMIDATION OF GLN-163 AND ASN-178.  
 RX MEDLINE=82052997; PubMed=7028740;

RA Lewis U.J., Singh R.N., Bonewald L.F., Seavey B.K.;  
 RT "Altered proteolytic cleavage of human growth hormone as a result of  
 RT deamidation.";  
 RL J. Biol. Chem. 256:11645-11650(1981).  
 RN [18]  
 RP PHOSPHORYLATION SITES SER-132 AND SER-176.  
 RC TISSUE=Pituitary;  
 RX PubMed=14997482; DOI=10.1002/pmic.200300584;  
 RA Giorgianni F., Beranova-Giorgianni S., Desiderio D.M.;  
 RT "Identification and characterization of phosphorylated proteins in the  
 RT human pituitary.";  
 RL Proteomics 4:587-598(2004).  
 RN [19]  
 RP REVIEW.  
 RX MEDLINE=99321812; PubMed=10393484; DOI=10.1159/000053128;  
 RA Baumann G.;  
 RT "Growth hormone heterogeneity in human pituitary and plasma.";  
 RL Horm. Res. 51 Suppl. 1:2-6(1999).  
 RN [20]  
 RP 3D-STRUCTURE MODELING.  
 RX MEDLINE=88190073; PubMed=3447173;  
 RA Cohen F.E., Kuntz I.D.;  
 RT "Prediction of the three-dimensional structure of human growth  
 RT hormone.";  
 RL Proteins 2:162-166(1987).  
 RN [21]  
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
 RX MEDLINE=92196577; PubMed=1549776;  
 RA de Vos A.M., Ultsch M., Kossiakoff A.A.;  
 RT "Human growth hormone and extracellular domain of its receptor:  
 RT crystal structure of the complex.";  
 RL Science 255:306-312(1992).  
 RN [22]  
 RP X-RAY CRYSTALLOGRAPHY (2.9 ANGSTROMS).  
 RX MEDLINE=95075462; PubMed=7984244; DOI=10.1038/372478a0;  
 RA Somers W., Ultsch M., de Vos A.M., Kossiakoff A.A.;  
 RT "The X-ray structure of a growth hormone-prolactin receptor complex.";  
 RL Nature 372:478-481(1994).  
 RN [23]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
 RA Chantalat L., Chirgadze N.Y., Jones N., Korber F., Navaza J.,  
 RA Pavlovsk A.G., Wlodawer A.;  
 RT "The crystal-structure of wild-type growth-hormone at 2.5-A  
 RT resolution.";  
 RL Protein Pept. Lett. 2:333-340(1995).  
 RN [24]  
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).  
 RX MEDLINE=97113023; PubMed=8943276; DOI=10.1074/jbc.271.50.32197;  
 RA Sundstroem M., Lundqvist T., Roedin J., Giebel L.B., Milligan D.,  
 RA Norstedt G.;  
 RT "Crystal structure of an antagonist mutant of human growth hormone,  
 RT G120R, in complex with its receptor at 2.9-A resolution.";  
 RL J. Biol. Chem. 271:32197-32203(1996).  
 RN [25]  
 RP VARIANT KOWARSKI SYNDROME CYS-103.  
 RX MEDLINE=96150232; PubMed=8552145; DOI=10.1056/NEJM199602153340704;  
 RA Takahashi Y., Kaji H., Okimura Y., Goji K., Abe H., Chihara K.;

```
RT "Short stature caused by a mutant growth hormone.";
RL N. Engl. J. Med. 334:432-436(1996).
RN [26]
RP ERRATUM.
RA Takahashi Y., Kaji H., Okimura Y., Goji K., Abe H., Chihara K.;
RL N. Engl. J. Med. 334:1207-1207(1996).
RN [27]
RP VARIANT KOWARSKI SYNDROME GLY-138.
RX MEDLINE=97426478; PubMed=9276733;
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## RESULT 2

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ID   SOMA MACMU          STANDARD;          PRT;    217 AA.
AC   P33093;
DT   01-OCT-1993 (Rel. 27, Created)
DT   01-OCT-1994 (Rel. 30, Last sequence update)
DT   05-JUL-2004 (Rel. 44, Last annotation update)
DE   Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth
DE   hormone) (Growth hormone 1).
GN   Name=GH1;
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=94008724; PubMed=8404617; DOI=10.1210/en.133.4.1744;
RA   Golos T.G., Durning M., Fisher J.M., Fowler P.D.;
RT   "Cloning of four growth hormone/chorionic somatomammotropin-related
RT   complementary deoxyribonucleic acids differentially expressed during
RT   pregnancy in the rhesus monkey placenta.";
RL   Endocrinology 133:1744-1752(1993).
RN   [2]
RP   SEQUENCE OF 27-217.
RX   MEDLINE=86129460; PubMed=3080959;
RA   Li C.H., Chung D., Lahm H.W., Stein S.;
RT   "The primary structure of monkey pituitary growth hormone.";
RL   Arch. Biochem. Biophys. 245:287-291(1986).
CC   -!- FUNCTION: Plays an important role in growth control. Its major
CC   role in stimulating body growth is to stimulate the liver and
CC   other tissues to secrete IGF-1. It stimulates both the
CC   differentiation and proliferation of myoblasts. It also stimulates
CC   amino acid uptake and protein synthesis in muscle and other
CC   tissues.
CC   -!- SUBCELLULAR LOCATION: Secreted.
CC   -!- SIMILARITY: Belongs to the somatotropin/prolactin family.
CC   -----

```

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 CC -----

DR EMBL; L16556; AAA18842.1; -.  
 DR PIR; I67410; I67410.  
 DR HSSP; P01241; 1AXI.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Direct protein sequencing; Hormone; Pituitary; Signal.  
 FT SIGNAL 1 26  
 FT CHAIN 27 217 Somatotropin.  
 FT DISULFID 79 191 By similarity.  
 FT DISULFID 208 215 By similarity.  
 FT CONFLICT 100 100 E -> Q (in Ref. 2).  
 FT CONFLICT 179 179 N -> D (in Ref. 2).  
 SQ SEQUENCE 217 AA; 24913 MW; 2C5180341EEC46D0 CRC64;

Query Match 98.1%; Score 255; DB 1; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 7.7e-24;  
 Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
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 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 74

### RESULT 3

#### SOMA\_PANTR

ID SOMA\_PANTR STANDARD; PRT; 217 AA.  
 AC P58756;  
 DT 28-FEB-2003 (Rel. 41, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Somatotropin precursor (Growth hormone) (GH) (GH-N) (Pituitary growth  
 DE hormone) (Growth hormone 1).  
 GN Name=GH1;  
 OS Pan troglodytes (Chimpanzee).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.  
 OX NCBI\_TaxID=9598;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;  
 RT "Independent duplication of the growth hormone gene in three  
 RT Anthropean lineages."  
 RL Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.  
 CC -!- FUNCTION: Plays an important role in growth control. Its major  
 CC role in stimulating body growth is to stimulate the liver and



CC other tissues to secrete IGF-1. It stimulates both the  
 CC differentiation and proliferation of myoblasts. It also stimulates  
 CC amino acid uptake and protein synthesis in muscle and other  
 CC tissues (By similarity).  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.  
 CC -----  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; AF374232; AAL72284.1; -.  
 DR HSSP; P01241; 1HWG.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Hormone; Pituitary; Signal.  
 FT SIGNAL 1 26 By similarity.  
 FT CHAIN 27 217 Somatotropin.  
 FT DISULFID 79 191 By similarity.  
 FT DISULFID 208 215 By similarity.  
 SQ SEQUENCE 217 AA; 24843 MW; FEA295EDE0518674 CRC64;

Query Match 98.1%; Score 255; DB 1; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 7.7e-24;  
 Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||  
 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 74

RESULT 4  
 Q6IYF0

ID Q6IYF0 PRELIMINARY; PRT; 217 AA.  
 AC Q6IYF0;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Growth hormone 1 variant 2.  
 GN Name=GH1;  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Jorge A.A.L., Arnhold I.J.P., Mendonca B.B.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DDBJ databases.  
 DR EMBL; AY613432; AAT11509.1; -.

DR HSSP; P01241; 1AXI.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005179; F:hormone activity; IEA.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 SQ SEQUENCE 217 AA; 24946 MW; 72D079DF52BDB51A CRC64;

Query Match 98.1%; Score 255; DB 2; Length 217;  
 Best Local Similarity 100.0%; Pred. No. 7.7e-24;  
 Matches 48; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
 |||||  
 Db 27 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 74

# RESULT 5

## Q6IYF1

ID Q6IYF1 PRELIMINARY; PRT; 217 AA.  
 AC Q6IYF1;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Growth hormone 1 variant 1.  
 GN Name=GH1;  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Jorge A.A.L., Arnhold I.J.P., Mendonca B.B.;  
 RL Submitted (APR-2004) to the EMBL/GenBank/DDBJ databases.  
 DR EMBL; AY613431; AAT11508.1; -.  
 DR HSSP; P01241; 1A22.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005179; F:hormone activity; IEA.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 SQ SEQUENCE 217 AA; 24875 MW; 12DB1B92F63934D8 CRC64;

Query Match 96.5%; Score 251; DB 2; Length 217;  
 Best Local Similarity 97.9%; Pred. No. 2.4e-23;  
 Matches 47; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
 |||||  
 Db 27 FPTIPLSRLFDNVMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 74

RESULT 6

SOMA\_CALJA

ID SOMA\_CALJA STANDARD; PRT; 217 AA.  
AC Q9GMB3;  
DT 28-FEB-2003 (Rel. 41, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 05-JUL-2004 (Rel. 44, Last annotation update)  
DE Somatotropin precursor (Growth hormone).  
GN Name=GH1;  
OS Callithrix jacchus (Common marmoset).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Callithrix.  
OX NCBI\_TaxID=9483;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Wallis O.C., Wallis M.;  
RT "Cloning and characterisation of a putative growth hormone encoding  
RT gene from the marmoset (Callithrix jacchus).";  
RL Submitted (AUG-2000) to the EMBL/GenBank/DBJ databases.  
CC -!- FUNCTION: Plays an important role in growth control. Its major  
CC role in stimulating body growth is to stimulate the liver and  
CC other tissues to secrete IGF-1. It stimulates both the  
CC differentiation and proliferation of myoblasts. It also stimulates  
CC amino acid uptake and protein synthesis in muscle and other  
CC tissues (By similarity).  
CC -!- SUBCELLULAR LOCATION: Secreted.  
CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.  
CC -----  
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CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC -----  
DR EMBL; AJ297563; CAC03481.1; -.  
DR HSSP; P01241; 1A22.  
DR InterPro; IPR009079; 4\_helix\_cytokine.  
DR InterPro; IPR001400; Somatotropin.  
DR Pfam; PF00103; Hormone\_1; 1.  
DR PRINTS; PR00836; SOMATOTROPIN.  
DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
KW Hormone; Pituitary; Signal.  
FT SIGNAL 1 26 By similarity.  
FT CHAIN 27 217 Somatotropin.  
FT DISULFID 79 191 By similarity.  
FT DISULFID 208 215 By similarity.  
SQ SEQUENCE 217 AA; 24959 MW; E102151A12CE6192 CRC64;

Query Match 95.8%; Score 249; DB 1; Length 217;  
Best Local Similarity 97.9%; Pred. No. 4.4e-23;  
Matches 47; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49

||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||  
27 FPTIPLSRLLDNAMLRAHRLHOLAFDTYOEFEAYIPKEQKYSFLNP 74

SOMA SAI BB

Query Match 95.8%; Score 249; DB 1; Length 217;

Query Match 95.8%; Score 249; DB 1; Length 217;

Best Local Similarity 97.9%; Pred. No. 4.4e-23;  
Matches 47; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

RESULT 8

```

ID      Q8WNE0              PRELIMINARY;          PRT;    217 AA.
AC      Q8WNE0;
DT      01-MAR-2002 (TrEMBLrel. 20, Created)
DT      01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT      01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
DE      Growth hormone.
GN      Name=GH-N;
OS      Ateles geoffroyi (Black-handed spider monkey).
OC      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC      Mammalia; Eutheria; Primates; Platyrrhini; Cebidae; Atelinae; Ateles.
OX      NCBI_TaxID=9509;
RN      [1]
RP      SEQUENCE FROM N.A.
RA      Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;
RL      Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
DR      EMBL; AF374234; AAL72286.1; -.
DR      HSSP; P01241; 1A22.
DR      GO; GO:0005576; C:extracellular; IEA.
DR      GO; GO:0005179; F:hormone activity; IEA.
DR      Pfam; PF00103; Hormone_1; 1.
DR      PRINTS; PR00836; SOMATOTROPIN.
DR      PROSITE; PS00266; SOMATOTROPIN_1; 1.
DR      PROSITE; PS00338; SOMATOTROPIN_2; 1.
SQ      SEQUENCE      217 AA;  24894 MW;  425829FF41EEAAE6 CRC64;

```

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 49  
 ||| |  
 Db 27 FPTIPLSRLLDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP 74

SOM2 PANTR

OX NCBI\_TaxID=9598;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Revol A., Esquivel D., Santiago D., Barrera-Saldana H.;  
 RT "Independent duplication of the growth hormone gene in three  
 RT Anthropoidean lineages.";  
 RL Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.  
 CC -!- FUNCTION: Plays an important role in growth control. Its major  
 CC role in stimulating body growth is to stimulate the liver and  
 CC other tissues to secrete IGF-1. It stimulates both the  
 CC differentiation and proliferation of myoblasts. It also stimulates  
 CC amino acid uptake and protein synthesis in muscle and other  
 CC tissues.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- TISSUE SPECIFICITY: Expressed in the placenta.  
 CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.  
 CC -----  
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 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; AF374233; AAL72285.1; -.  
 DR HSSP; P01241; 1A22.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Glycoprotein; Hormone; Placenta; Signal.  
 FT SIGNAL 1 26 By similarity.  
 FT CHAIN 27 217 Growth hormone variant.  
 FT DISULFID 79 191 By similarity.  
 FT DISULFID 208 215 By similarity.  
 SQ SEQUENCE 217 AA; 24990 MW; 1592A429075677DE CRC64;

Query Match 90.8%; Score 236; DB 1; Length 217;  
 Best Local Similarity 93.8%; Pred. No. 1.9e-21;  
 Matches 45; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
 |||||:|||||  
 Db 27 FPTIPLSRLFDNAMLRAHRLYQLAYDTYQEFEEAYILKEQKYSFLQNP 74

# RESULT 10

## SOM2\_HUMAN

ID SOM2\_HUMAN STANDARD; PRT; 217 AA.  
 AC P01242; P09587;  
 DT 21-JUL-1986 (Rel. 01, Created)  
 DT 28-FEB-2003 (Rel. 41, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Growth hormone variant precursor (GH-V) (Placenta-specific growth

DE hormone) (Growth hormone 2).  
 GN Name=GH2;  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A. (ISOFORM 1).  
 RX MEDLINE=83182010; PubMed=7169009;  
 RA Seeburg P.H.;  
 RT "The human growth hormone gene family: nucleotide sequences show  
 RT recent divergence and predict a new polypeptide hormone.";  
 RL DNA 1:239-249(1982).  
 RN [2]  
 RP SEQUENCE FROM N.A. (ISOFORMS 1 AND 2).  
 RX MEDLINE=88243769; PubMed=3379057;  
 RA Cooke N.E., Ray J., Emery J.G., Liebhaver S.A.;  
 RT "Two distinct species of human growth hormone-variant mRNA in the  
 RT human placenta predict the expression of novel growth hormone  
 RT proteins.";  
 RL J. Biol. Chem. 263:9001-9006(1988).  
 RN [3]  
 RP SEQUENCE FROM N.A. (ISOFORM 1).  
 RX MEDLINE=89024984; PubMed=2460050;  
 RA Igout A., Scippo M.L., Franken F., Hennen G.;  
 RT "Cloning and nucleotide sequence of placental hGH-V cDNA.";  
 RL Arch. Int. Physiol. Biochim. 96:63-67(1988).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=89307277; PubMed=2744760;  
 RA Chen E.Y., Liao Y.C., Smith D.H., Barrera-Saldana H.A., Gelinas R.E.,  
 RA Seeburg P.H.;  
 RT "The human growth hormone locus: nucleotide sequence, biology, and  
 RT evolution.";  
 RL Genomics 4:479-497(1989).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Placenta;  
 RX MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;  
 RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,  
 RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,  
 RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,  
 RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,  
 RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,  
 RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,  
 RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,  
 RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,  
 RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,  
 RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,  
 RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,  
 RA Fahey J., Helton E., Kettelman M., Madan A., Rodrigues S., Sanchez A.,  
 RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,  
 RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,  
 RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,  
 RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,  
 RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;  
 RT "Generation and initial analysis of more than 15,000 full-length human

RT and mouse cDNA sequences.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).  
 RN [6]  
 RP REVIEW.  
 RX MEDLINE=99321812; PubMed=10393484; DOI=10.1159/000053128;  
 RA Baumann G.;  
 RT "Growth hormone heterogeneity in human pituitary and plasma.";  
 RL Horm. Res. 51 Suppl. 1:2-6(1999).  
 CC -!- FUNCTION: Plays an important role in growth control. Its major  
 CC role in stimulating body growth is to stimulate the liver and  
 CC other tissues to secrete IGF-1. It stimulates both the  
 CC differentiation and proliferation of myoblasts. It also stimulates  
 CC amino acid uptake and protein synthesis in muscle and other  
 CC tissues.  
 CC -!- SUBUNIT: Monomer, dimer, trimer, tetramer and pentamer, disulfide-  
 CC linked or non-covalently associated, in homopolymeric and  
 CC heteropolymeric combinations. Can also form a complex either with  
 CC GHBP or with the alpha2-macroglobulin complex.  
 CC -!- SUBCELLULAR LOCATION: Secreted.  
 CC -!- ALTERNATIVE PRODUCTS:  
 CC Event=Alternative splicing; Named isoforms=2;  
 CC Name=1; Synonyms=GH-V1;  
 CC IsoId=P01242-1; Sequence=Displayed;  
 CC Name=2; Synonyms=GH-V2;  
 CC IsoId=P01242-2; Sequence=VSP\_006203;  
 CC Note=No experimental confirmation available;  
 CC -!- TISSUE SPECIFICITY: Expressed in the placenta.  
 CC -!- SIMILARITY: Belongs to the somatotropin/prolactin family.  
 CC -----  
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 CC -----  
 DR EMBL; K00470; AAA98619.1; -.  
 DR EMBL; J03756; AAB59547.1; -.  
 DR EMBL; J03756; AAB59548.1; -.  
 DR EMBL; M38451; AAA35891.1; -.  
 DR EMBL; J03071; AAA52552.1; -.  
 DR EMBL; BC020760; AAH20760.1; -.  
 DR PIR; A28072; STHUV2.  
 DR PIR; D32435; STHUV.  
 DR HSSP; P01241; 1A22.  
 DR Genew; HGNC:4262; GH2.  
 DR H-InvDB; HIX0014077; -.  
 DR MIM; 139240; -.  
 DR GO; GO:0005179; F:hormone activity; TAS.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
 KW Alternative splicing; Glycoprotein; Hormone; Placenta; Polymorphism;



KW	Signal.			
FT	SIGNAL	1	26	
FT	CHAIN	27	217	Growth hormone variant.
FT	DISULFID	79	191	By similarity.
FT	DISULFID	208	215	By similarity.
FT	CARBOHYD	166	166	N-linked (GlcNAc. . .) (Potential).
FT	VARSP LIC	153	217	RLEDGSPRTGQIFNQSYSKFDTKSHNDDALLKNYGLLYCFR
FT				KDMDKVETFLRIVQCRSVEGSCGF -> VRVAPGIPNPGAP
FT				LASRDWGEKHCCPLFSSQALTQENSPYSSFPVLNPPGLSLQ
FT				PGGEGGKWMNERGREQCPSAWPLLLFLHFAEAGRWPDPWA
FT				DLQSVLQQV (in isoform 2).
FT				/FTId=VSP_006203.
FT	VARIANT	90	90	R -> W (in dbSNP:5389).
FT				/FTId=VAR_014591.
FT	CONFLICT	109	109	I -> T (in Ref. 2).
SQ	SEQUENCE	217 AA;	24999 MW;	7B9324698E822F96 CRC64;

Query Match 87.7%; Score 228; DB 1; Length 217;  
 Best Local Similarity 91.7%; Pred. No. 1.9e-20;  
 Matches 44; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy	2	FPTIPLSRLFDNAMLRAHRLHQLAFDITYQEFEEAYIPKEQKYSFLQNP	49
Db	27	FPTIPLSRLFDNAMLRRRLYLQLAYDITYQEFEEAYILKEQKYSFLQNP	74

# RESULT 11

Q6FH32

ID	Q6FH32	PRELIMINARY;	PRT;	217 AA.
AC	Q6FH32;			
DT	05-JUL-2004	(TrEMBLrel. 27, Created)		
DT	05-JUL-2004	(TrEMBLrel. 27, Last sequence update)		
DT	05-JUL-2004	(TrEMBLrel. 27, Last annotation update)		
DE	GH2 protein (Fragment).			
GN	Name=GH2;			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.			
OX	NCBI_TaxID=9606;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RA	Halleck A., Ebert L., Mkoundinya M., Schick M., Eisenstein S.,			
RA	Neubert P., Kstrang K., Schatten R., Shen B., Henze S., Mar W.,			
RA	Korn B., Zuo D., Hu Y., LaBaer J.;			
RL	Submitted (JUN-2004) to the EMBL/GenBank/DDBJ databases.			
DR	EMBL; CR541924; CAG46722.1; -.			
DR	GO; GO:0005576; C:extracellular; IEA.			
DR	GO; GO:0005179; F:hormone activity; IEA.			
DR	InterPro; IPR009079; 4_helix_cytokine.			
DR	InterPro; IPR001400; Somatotropin.			
DR	Pfam; PF00103; Hormone_1; 1.			
DR	PRINTS; PR00836; SOMATOTROPIN.			
DR	PROSITE; PS00266; SOMATOTROPIN_1; 1.			
DR	PROSITE; PS00338; SOMATOTROPIN_2; 1.			
FT	NON_TER	217	217	
SQ	SEQUENCE	217 AA;	25010 MW;	075C0EF63C15AAF5 CRC64;

Query Match 87.7%; Score 228; DB 2; Length 217;  
Best Local Similarity 91.7%; Pred. No. 1.9e-20;  
Matches 44; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
|||||:|||||  
Db 27 FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNP 74

RESULT 12

Q6FH54

ID Q6FH54 PRELIMINARY; PRT; 217 AA.  
AC Q6FH54;  
DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
DE GH2 protein.  
GN Name=GH2;  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA Halleck A., Ebert L., Mkoundinya M., Schick M., Eisenstein S.,  
RA Neubert P., Kstrang K., Schatten R., Shen B., Henze S., Mar W.,  
RA Korn B., Zuo D., Hu Y., LaBaer J.;  
RL Submitted (JUN-2004) to the EMBL/GenBank/DDBJ databases.  
DR EMBL; CR541902; CAG46700.1; -.  
DR GO; GO:0005576; C:extracellular; IEA.  
DR GO; GO:0005179; F:hormone activity; IEA.  
DR InterPro; IPR009079; 4\_helix\_cytokine.  
DR InterPro; IPR001400; Somatotropin.  
DR Pfam; PF00103; Hormone\_1; 1.  
DR PRINTS; PR00836; SOMATOTROPIN.  
DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
DR PROSITE; PS00338; SOMATOTROPIN\_2; 1.  
SQ SEQUENCE 217 AA; 25001 MW; F24C05312EB37988 CRC64;

Query Match 87.7%; Score 228; DB 2; Length 217;  
Best Local Similarity 91.7%; Pred. No. 1.9e-20;  
Matches 44; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
|||||:|||||  
Db 27 FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNP 74

RESULT 13

O14644

ID O14644 PRELIMINARY; PRT; 245 AA.  
AC O14644;  
DT 01-JAN-1998 (TrEMBLrel. 05, Created)  
DT 01-JAN-1998 (TrEMBLrel. 05, Last sequence update)  
DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)  
DE Placental growth hormone isoform hGH-V3 precursor.  
GN Name=hGH-V;

OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Full-term placenta;  
 RX MEDLINE=98373737; PubMed=9709963; DOI=10.1210/jc.83.8.2878;  
 RA Boguszewski C.L., Svensson P.A., Jansson T., Clark R.,  
 RA Carlsson L.M.S., Carlsson B.;  
 RT "Cloning of two novel growth hormone transcripts expressed in human  
 RT placenta.";  
 RL J. Clin. Endocrinol. Metab. 83:2878-2885(1998).  
 DR EMBL; AF006061; AAB71829.1; -.  
 DR HSSP; P01241; 1A22.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005179; F:hormone activity; IEA.  
 DR InterPro; IPR009079; 4\_helix\_cytokine.  
 DR InterPro; IPR001400; Somatotropin.  
 DR Pfam; PF00103; Hormone\_1; 1.  
 DR PRINTS; PR00836; SOMATOTROPIN.  
 DR PROSITE; PS00266; SOMATOTROPIN\_1; 1.  
 KW Signal.  
 FT SIGNAL 1 26 Potential.  
 SQ SEQUENCE 245 AA; 27101 MW; 14CC7F8CD75D91C8 CRC64;

Query Match 87.7%; Score 228; DB 2; Length 245;  
 Best Local Similarity 91.7%; Pred. No. 2.2e-20;  
 Matches 44; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

Qy 2 FPTIPLSRLFDNAMLRAHRLHQLAFDTYQEFEEAYIPKEQKYSFLQNP 49  
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 Db 27 FPTIPLSRLFDNAMLRRRLYQLAYDTYQEFEEAYILKEQKYSFLQNP 74

#### RESULT 14

Q866T9

ID Q866T9 PRELIMINARY; PRT; 184 AA.  
 AC Q866T9;  
 DT 01-JUN-2003 (TrEMBLrel. 24, Created)  
 DT 01-JUN-2003 (TrEMBLrel. 24, Last sequence update)  
 DT 01-MAR-2004 (TrEMBLrel. 26, Last annotation update)  
 DE Placental lactogen PL-C (Fragment).  
 OS Pan troglodytes (Chimpanzee).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.  
 OX NCBI\_TaxID=9598;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX PubMed=15246530; DOI=10.1016/j.gene.2004.03.034;  
 RA Revol De Mendoza A., Esquivel Escobedo D., Martinez Davila I.,  
 RA Saldana H.;  
 RT "Expansion and divergence of the GH locus between spider monkey and  
 RT chimpanzee.";  
 RL Gene 336:185-193(2004).  
 RN [2]  
 RP SEQUENCE FROM N.A.



SQ SEQUENCE 212 AA; 24525 MW; 27BC91106256E6F5 CRC64;

Matches 37; Conservative 9; Mismatches 1; Indels 0; Gaps 0;

| : : | | | | | | : | | : : | | | | | | | | | | | | | | | | : | : | : : |

Db 23 PSVPLSRLFDHAMIQAHLHQLAFTDYQEFEEAYIPKEKKHSLMENP 69

Job time : 44.762 secs